

The Mining Journal.

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper and for Transmission Abroad]

No. 2328.—VOL. L.

LONDON, SATURDAY, APRIL 3, 1880.

WITH SUPPLEMENT. PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded regularly on application), containing closing prices of the week.

BANKERS: CITY BANK, LONDON—SOUTH CORNWALL BANK, ST. AUUSTELL.

SPECIAL DEALINGS in the following, or part:—
50 Almada, 12s. 6d.
100 Bedford United, 15s.
25 Carnarvon Cop., 22s.
10 Devon Consols, £12½.
30 East Crebore, 17s.
25 East Caradon, £3 16 3
5 E. Roman Grav., 16s 3
50 Flagstaff, £2 13s. 9d.
50 Frontino, £3 7s. 6d.
50 Glenrock, £1 13s. 9d.
25 Glenroy, 25s.
20 Grogwinion, £3 10s.
20 Herodsfoot, £4½.
25 Hingston Down, 20s.
50 Javali, 8s. 9d.
20 Killfretth, 20s.
20 Leadhills, £3 13s. 9d.
20 Marke Valley, £1 17 6
20 Nouveau Monde, 36s.
50 N. Penstruthal, £1 16
50 N. D'Esreshy, 20s.
50 N. Herodsfoot, 12s. 6d.
25 Pandora, 17s. 6d.
25 Port Nigol, £2.
100 Port Phillip, 11s.
50 Prince of Wales, 17s.
100 Parys Copper, 27s. 6d.
50 Pestarena, 7s.
20 Ruby, £7½.
20 Richmond, £14½.
5 Roman Gravels, £10½
50 S. Indian Gold, £1 18 9
10 Santa Barbara, £2½.
10 So. Condurow, £11½.
20 South Darren, £3½.
20 South Crebore.
50 S. E. Wynaad, £1 11 3
100 S. Penstruthal, 14s.
10 Tankerville, £4 17s. 6d.
25 U. Van and Glyn, 18s.
20 West Phoenix, £2½.
20 Wheel Crebore, £4½.

RAILWAYS—SPECIAL BUSINESS.

FOREIGN BONDS—SPECIAL BUSINESS.

Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES

AND MISCELLANEOUS SHARES of every description.

RAILWAYS, BANKS, FOREIGN AND COLONIAL BONDS.

TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.

Accounts opened for the Fortnightly Settlement

A List of Investments free on application.

Mr. BUMPUS has SPECIAL BUSINESS in the undermentioned:—
50 Aberllyn, 23s.
100 Almada, 13s.
30 Assheton.
15 Blue Hills, £4.
40 Bedford United.
50 Blue Tent, £2½.
75 Bodidris.
60 Canara Copper, £2½.
50 Carnarvon, 22s.
100 Consolidated, £40.
3 Carn Brea, £40.
5 Cape Copper, £39½.
15 Copiapo, £12½.
20 Devon Consols, £13 8 9
40 Derwent, £3½.
2 Dolcoath, £40.
100 Don Pedro, 22s. 6d.
5 East Pool, £35½.
75 East Roman Gravels.
20 Eberhardt, £4 8s. 9d.
25 East Chiverton.
15 East Van, 39s. 6d.
20 East Caradon, £3½.
10 Frongoch, £5½.
40 Flagstaff, £2½.
35 Frontino, £3 11s. 3d.
100 Glenroy, 25s.
5 Great Laxey.
50 Glenrock (Gold), 39s 6
25 Great Holway.
50 Hingston, 19s. 6d.
50 Herodsfoot, £4½.
60 Killfretth, 20s.
40 Leadhills.
20 Mellanear, £5½.
30 Marke Valley, 37s. 6d.
40 New Peevor.
50 New Quebrada, £3 18s.
25 No. Herodsfoot, 11s. 6
100 Nouveau Monde, 37s 6
50 Pen-yr-Orsedd.
75 Pestarena, 7s.
50 Parys Copper, 27s. 9d.
25 Pannicillo, £4½.
60 Port Phillip, 10s. 6d.
30 Port Nigol.
40 Pandora, 16s. 6d.
10 Ruby, £7½.
15 Richmond, £14½.
50 Roman Gravels, £10½
5 S. Condurow, £11½.
50 South Indian, 39s. 6d.
25 South Darren, £3½.
5 Tincroft, £20.
3 Van, £18½.
100 Wheel Jewell, 19s. 6d.
20 Wheel Sisters, £4½.
40 West Kitty.
10 Wh. Grenville, £9½.
30 West Phoenix, £2½.
50 Wheel Peevor, £2½.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Mr. BUMPUS devotes special attention to these Securities, and is in a position to afford reliable information and advice to intending investors and others.

The following Mines are particularly recommended:—
WHEAL GRENVILLE. WHEAL PEEVOR. WEST PHENIX.
NEW PEEVOR. WHEAL SISTERS. WEST PHENIX.
PEN-YR-ORSEDD. DERWENT. SOUTH DARREN.

WILLIAM HENRY BUMPUS, SWORN BROKER.
OFFICES: 44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

MR. JOHN POOLE, STOCK AND SHARE DEALER,
GRACECHURCH BUILDINGS,
GRACECHURCH STREET, LONDON.

Has special and reliable information regarding the following mines, and he recommends the immediate purchase of the shares at present prices:—
Polrose (Tin). East Crebore. Parys Corporation.
Prince of Wales. West Caradon. Morla Du.
Wheel Crebore. South Penstruthal.

The prospects of these mines are excellent, and should the present price of metals be maintained a rise of 300 or 400 per cent. may be expected in the next few months.

J. P. has Special Business in each at the closest net prices of the day.

MR. J. ROSEWARNE, 3, COTHALL BUILDINGS,
LONDON, E.C.

WEST DEVON GREAT CONSOLS strongly recommended at present price—£2½ to £2¾. The adjoining Mine (Devon Great Consols) rose from £1 to £300 per share, and the general opinion is that West Devons will have a great rise very speedily. For further particulars, apply at the above address.

WANTED TO BUY—
100 Bedford United. 100 East Crebore. 100 Prince of Wales.
15 Carn Brea. 50 Glenrock. 10 So. Wheel Franches.
50 Devon Consols. 50 Hingston Down. 50 Wheel Crebore.

CHARLES J. SIMS, MINE OWNER, STOCK AND SHARE DEALER,
2, DRAPER'S GARDENS, THROMORTON STREET,
LONDON, E.C.

(Late of Tavistock, Devon, the centre of the Devon Consols District.)
Special and reliable information and advice on the mines of Devon and Cornwall, and of the Llanrwst District.

Twenty-five years experience in Mining.
Special information on Manganese Mines at home and abroad.

All business entrusted to C. J. SIMS will have careful and prompt attention.

MESSRS. J. GAPPER AND CO., PRACTICAL MINING ENGINEERS,
No. 5, AUSTIN FRIARS, E.C.
ESTABLISHED 1842.

Messrs. G. and Co. strongly recommend the purchase of Shares in LADY BEITH UNITED, BETTWS-Y-COED (Lead), and GLANDORE MINES for a great rise in price during the present year.

MR. JOHN RISLEY, STOCK AND SHARE BROKER,
38, CORNHILL, LONDON E.C.
ESTABLISHED 1858.

BANKERS: LONDON AND WESTMINSTER, Lothbury.

POLROSE TIN SHARES.—This great property, situated near the Great Wheel Vor and Great Work Mines, is in the centre of a group of tin lodes that have given over two millions sterling in dividends; and, according to all reports, a large area of rich tin ground is in Polrose undeveloped, from which great riches will be forthcoming during the present year.

WEST CARADON.—The riches of this mine are well known. Over £120,000 have been paid in dividends, and a large and most important section of the mine is yet undeveloped. Operations have been commenced, which it is expected will shortly lay open rich courses of ore, which can be worked without steam power. This promises to be one of the greatest copper prizes of 1880, and shares should be immediately secured while they can be had at the present low price.

J. R. specially and strongly recommends these mines for a rise of from 300 to 400 per cent. during the present year.

STOCK AND SHARE MARKETS.

Prices of STOCKS and SHARES in RAILWAYS, BANKS, ENGLISH and FOREIGN GOVERNMENT SECURITIES, GAS, MINES, INSURANCE, and other Stock Exchange Securities, and various important information forwarded on application to—

MESSRS. PETER WATSON AND CO.,
18, AUSTIN FRIARS,
OLD BROAD STREET, LONDON, E.C.

BUYER and SELLER of SHARES at the close Market Price of the day.

BANKERS: THE ALLIANCE BANK (Limited).

MESSRS. PETER WATSON AND CO.'S
BRITISH AND FOREIGN MONTHLY MINING NEWS
—STOCK AND SHARE INVESTMENT NOTES—MINES,
MINERALS, AND METAL MARKETS—SHARE LIST,
No. 816, VOL. XV., for MARCH month, will be ready next
week, and will be sent to customers on application.

Annual Subscription..... 5s. Single Copy..... 6d.

MESSRS. PETER WATSON AND CO.,
18, AUSTIN FRIARS, E.C.

MR. ALFRED E. COOKE,
DEALER at NET PRICES in EVERY DESCRIPTION of STOCKS
and SHARES,
76, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.

IMPORTANT—THE ELECTORAL CRISIS.

Investors should now seek SOUND and UNBIASED OPINIONS, as pending the ELECTORAL CRISIS prices will probably fluctuate considerably.

THE INVESTOR'S GAZETTE.

Applicants are informed that the next number will be issued on Friday, the 9th instant. Other investors desiring a copy must apply immediately.

SPECIAL NOTICE.

Mr. COOKE'S Offices adjoin both the Stock Exchange and Mining Market, but for the further convenience of clients they are now in telegraphic communication with the Stock Exchange.

DAILY LIST OF PRICES ISSUED TO CLIENTS.

ALFRED E. COOKE,
76, OLD BROAD STREET, LONDON.
(ESTABLISHED 1853)

Over 13 years at the above offices, adjoining the Stock Exchange and Mining Markets.

STOCKS AND SHARES,
FOREIGN BONDS, TELEGRAPHS, TRAMWAYS, RAILWAYS, AND
OTHER LEADING SECURITIES.

MR. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1848.

SPECIAL BUSINESS in the following:—
Almada Consol., 11s 6d
Colorado, £2½.
Chontales, 3s. 9d.
Consolidated, 17s. 6d.
Derwent, £3 11s. 6d.
Devon Gt. Cons., £12½.
Don Pedro, 21s.
E. Rom. Gravels, 15s.
East Lovell, 37s. 6d.
East Caradon, £3½.
East Crebore, 15s.
Eberhardt, £4 6s. 3d.
Emma, 12s.
Exchequer, 7s.
Flagstaff, £2½.
Glenroy, £4½.
Glenisla (Clitters).
Glenrock.
Herodsfoot.
Leadhills, £3 8s. 9d.
Marke Valley, 37s. 6d.
Morla Du, 23s. 9d.
North Penstruthal, £1½
Nouveau Monde, 36s. 3
Parys Corpora., 27s. 6d.
Polrose, £2 5s.
Prince of Wales, 16s. 6d
Pestarena, 5s. 9d.
Richmond, £14½.
Ruby, £7.
Sentein.
South Darren, £3 3s. 9d
8th. Penstruthal, 13s. 9
So. East Wynaad, off-w
South Indian, £1 17s.
Tankerville, £5.
West Caradon, 45s.
West Chiverton, 21s.
West Franches.
Wheal Crebore.
Wheal Grenville, £9.
Wheal Peevor, £27½.

GOLD COAST MINING COMPANY.

IMPORTANT.—Mr. STOCKER has a limited number of SHARES FOR DISPOSAL at 5s. pm. Parties desirous of having an interest should immediately apply. Reports on application.

BANKERS: LONDON AND WESTMINSTER.

HORACE J. TAYLOR, STOCK AND SHARE DEALER,
38, GREAT ST. HELEN'S, LONDON, E.C.

(Late of the Port Phillip and Victoria Mining Companies.)

Business transacted at net prices in every description of Stocks and Shares.

SPECIAL DEALINGS in the undermentioned:—
25 Almada & Tiritio.
100 Bedford United.
100 Bwch United.
50 Consolidated.
100 Colorado.
75 Don Pedro.
25 Derwent.
10 Devon Great Consols.
100 Eberhardt & Aurora.
25 East Caradon.
50 Frontino.
100 Hingston Down.
50 Prince of Wales.
50 Pestarena.
250 Port Phillip.
100 Rossa Grande.
50 South Darren.
75 So. India Gold.
20 Tankerville.
50 Victoria (London).
20 Wheel Kitty.

VICTORIA (London) are strongly recommended for increased dividends, and should be purchased at the present low price.

BANKERS: CENTRAL BANK OF LONDON (Limited).

MESSRS. W. DUNN & CO., STOCK & SHARE DEALERS,
3 AND 4, GREAT WINCHESTER STREET BUILDINGS,
LONDON, E.C. ESTABLISHED 1863.

Messrs. W. DUNN and Co. have FOR SALE the following SHARES, and will be happy to receive offers for the whole or part:—

50 Assheton.
60 Bodidris.
50 Bedford United.
25 Colorado United.
5 Cambrian.
3 Dolcoath.
70 Denbighshire Consol.
10 Lead. Holway.
15 Leadhills.
10 Lead Era.
100 Llandegla.
50 Tamar.
10 Wye Valley.
20 Wheel Sisters.
10 Minera.
15 Roman Gravels.
100 Pen-yr-Orsedd.
100 Rhosmor.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C.

Can SELL the following SHARES at prices annexed:—
75 Almada, 12s. 6d.
20 Bedford United, 15s.
20 Birdseye Creek, 21s.
50 Chontales, 4s. 9d.
20 Colorado, £3.
25 Carnarvon, 22s.
20 Carn Camborne, £2.
10 Cedar Creek, 2s. 9d.
10 Devon Consols, £14.
50 Don Pedro, £1 2s. 6d.
15 East Caradon, £4.
20 Eberhardt, £4 5s.
30 Flagstaff, £2 15s.
30 Glenroy, £1 5s.
40 Glenrock Gold, £1 18 3
20 Hingston, £1.
20 Marke Valley, £1½.
5 Minera, £11 15s.
30 Morla Du, £1 6s. 3d.
25 New Kitty.
20 New Quebrada, £1 13
50 Nou. Monde, £1 17s. 6
40 Parys Corpor., £1 7 6
100 Pestarena, 6s. 9d.
100 Port Phillip, 10s. 3d.
20 Pandora, 13s. 9d.
50 Prince of Wales, 17s.
SOUTH WHEAL CREBORE (Limited), £1 fully pd., strongly recommended at £1½

MR. W. TREGELLAS, 19, BISHOPSGATE STREET
WITHIN, E.C.

Deals in all descriptions of MINING SHARES at close market prices, and is always in a position to do business in SANTA BARBARA, PITANGUI, COPIAPO, and BRAZILIAN GOLD MINES.

BRAZILIAN GOLD MINES (LIMITED).
WALTER TREGELLAS strongly recommends the immediate purchase of these shares. The company holds a series of extraordinarily rich gold mines, which from surface scratchings have yielded gold of the value of upwards of £150,000. The company likewise holds a mountain of "Jacotinga." The shares are £1, fully paid.

The Brazilian Gold Mines will be the great Gold Mining Prize of 1880.

Full particulars on application.

THE "DIFFERENTIAL" PUMPING ENGINE (DAVEY'S PATENT),

FOR
DRAINING MINES, WATER SUPPLY OF TOWNS, IRRIGATION,
SUPPLYING DOCKS, PUMPING SEWAGE, and GENERAL
PUMPING PURPOSES

HATHORN, DAVEY, AND CO.,
LEEDS.

HATHORN, DAVEY, and Co. have Patterns of "Differential" Engines of all sizes, from 5 to 500-horse power, and have facilities for supplying very powerful Engines and Pumps at a short notice.

See Illustrated Advertisement every alternate week.

MR. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS,
MINING AGENT, AND STOCK AND SHARE DEALER,
10, COLEMAN STREET, LONDON, E.C.

ALFRED THOMAS is desirous of purchasing a few shares in the LISBURN MINE. Sellers please state number and lowest price.

FOR SALE, 200 PRINCE PATRICK shares at reasonable price. Next dividend will probably be at the rate of 20 per cent. per annum.

Second Edition, just published, price 6d.

"HOW TO TAKE ADVANTAGE OF THE COMING RISE IN PRICES."

TO INVESTORS, SHAREHOLDERS, TRUSTEES.

SAFE DIVIDEND INVESTMENTS PAYING 4 TO 6 AND 10 PER CENT. PER ANNUM ON PRESENT OUTLAY.

SHARP'S INVESTMENT CIRCULAR.

The APRIL EDITION (post free).

SHOULD BE CONSULTED BY INVESTORS AND SHAREHOLDERS.

It is a Reliable "Guide," giving valuable information and Sound Advice, &c. It gives Market prices; Dividends upon outlay, when payable; Reports, &c., &c. IT CONTAINS ALL THE SAFE INVESTMENTS IN THE FOLLOWING:

English, Foreign Railways. Insurance, Gas, Waterworks.

Preference, Debenture Stocks. Colonial, Foreign Stocks.

Indian, American Stocks. British, Foreign, Colonial Mines.

Bank, Financial Shares. Tea, Land Shares.

Tramway, Telegraph Shares. Shipping, Dock Shares.

Municipal Bonds. Miscellaneous Shares, &c., &c.

HENRY GOULD SHARP, STOCK AND SHARE BROKER,

42, POULTRY, LONDON, E.C.—ESTABLISHED 1852.

BANKERS: LONDON AND WESTMINSTER, Lothbury, London, E.C.

NOTICE OF REMOVAL.

G R A N V I L L E S H A R P,

32, QUEEN VICTORIA STREET, LONDON, E.C.

MR. EDWARD ASHMEAD has REMOVED from

Cornhill Chambers, 62, Cornhill, London, E.C., to

No. 2, DRAPER'S GARDENS, THROMORTON STREET,

LONDON, E.C.

JOHN B. REYNOLDS, STOCK AND SHARE DEALER,

37, WALBROOK, LONDON, E.C.

ESTABLISHED 20 YEARS.—BANKERS: LONDON & SOUTH-WESTERN.

Mr. REYNOLDS deals promptly at close prices in all descriptions of Stocks and Shares, making a speciality of MINES, concerning which he can get accurate information.

Mr. REYNOLDS points to the results of his recommendation of Mines in the Peevor district as an illustration of the profits which can be made, and irrespective of market fluctuations, which no one can foresee.

He strongly advises the purchase of BLUE HILLS, WEST PEEVORS, and WEST KITTY'S. Sellers or Buyers will find ready markets for these Shares at his offices or on the Stock Exchange.

He is prepared to BUY a large number of NEW KITTY'S, which he also recommends for a rise in price and as an excellent investment.

Mr. REYNOLDS has made such exceptional arrangements as will enable him to hand over Stock bought immediately the cash is received; and thus he avoids the inconvenience arising from buyers having so long to wait for delivery after having remitted the purchase money.

STOCKS AND SHARES.

FOREIGN BONDS, RAILWAYS, TRAMWAYS, GAS, INSURANCE,

IRON, COAL, and MISCELLANEOUS SHARES.

Prices, with reliable information, forwarded on application to—

MESSRS. H. R. LEWIS AND CO.,

BARTHOLOMEW HOUSE,

BARTHOLOMEW LANE,

LONDON, E.C.

SPECIAL INFORMATION in the SELECTION of MINING SECURITIES.

The "MINING TELEGRAPH," published Monthly, and "WEEKLY PRICE LIST" may be had on application.

FERDINAND R. KIRK, 5, BIRCHIN LANE,

LONDON, E.C.

FORTNIGHTLY ACCOUNTS opened, on receipt of the usual "cover," in

Railways Home and Foreign, Mining Shares, Foreign Bonds, and certain Miscellaneous Securities.

"THE WEEK"—A SEPARATE EDITION from that which appears in the

Mining Journal is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

BANKERS: LONDON AND WESTMINSTER, Lothbury.

MR. E. J. BARTLETT, BRITISH AND FOREIGN STOCK

AND SHARE DEALER, No. 30, GREAT ST. HELEN'S, LONDON, E.C.

PEN-YR-ORSEDD, GREAT HOLWAY, and WEST HOLWAY shares should have a great rise—rich courses of ore proved.

Just Out.

HOW TO INVEST, post free, One Shilling, Fourteenth Edition, much enlarged.

F R A N C I S F R A N C I S,

MINING ENGINEER, STOCK AND SHARE DEALER,

CORN EXCHANGE CHAMBERS, CHESTER.

SPECIAL BUSINESS in—HALKYN DISTRICT MINES DRAINAGE,

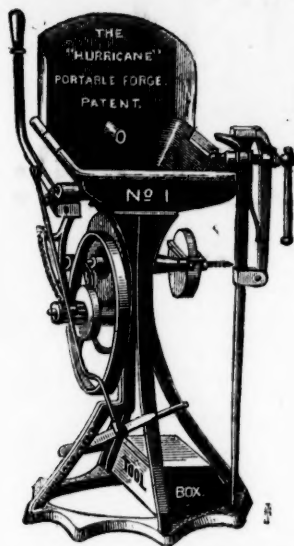
RHYDALUN, RHOSMOR, DEEP LEVEL, NORTH HENDRE, PEN-YR-ORSEDD, VRON, TYDDYN-Y-GWYNT, and other Mining Properties in the

Drainage areas. Also in PITANGUI, SANTA BARBARA, and other Brazilian Gold Mines.

MR. JOHN L. M. FRASER,

(Fourteen Years at the Great Minera Mines)
CONSULTING MINING ENGINEER, &c.,
GREENFIELD HOUSE, WREXHAM.

A COMPLETE, PORTABLE, AND EFFICIENT SMITHY FOR £7 7s.



THE "HURRICANE" PORTABLE FORGE

(HARDINGE'S PATENT).

A Complete and Portable Smithy, possessing a Powerful Blast, a Forge, a Hearth, a Vice, an Anvil, a Rivetter's Hearth,



a Brazier's Hearth, a Mine Ventilating Apparatus, a Tool Grinder (Emery), a Cutter, a Circular Saw and Bench, a Polishing Wheel, a Chuck, Two Drills, a Drill Rest, and a Tool Box.

PATENTED IN EUROPE AND AMERICA.



The "HURRICANE" Patent Portable Forges possess advantages unobtainable with Forges of any other description. They commend themselves to the world, not only as being complete and portable Smithies and mine and ship ventilators of the highest practical value, but also for the extreme ease with which they are worked, the simplicity and compactness of their construction, and the steady continuous blast, which speedily creates an unusually high degree of heat. The "Hurricane" Portable Forges are made in nine distinct sizes, embrace attachments which form a complete smithy, and are suitable for all purposes in all climates.

The Rivetter's Hearth is readily connected to the nozzle of the forge by means of a flexible tube, and can be used in any awkward position for keeping rivets hot and close to the work. The Brazier's Hearth is similarly worked, but is constructed with a nozzle on opposite sides for producing heat equally on both sides of the work, and is particularly adapted for brazing band saws, &c. Hand Blowers for all ventilating purposes, and for fixed blacksmiths' hearths, are made on a new principle.

The Lever Handle can be used at any angle, or taken off altogether, and the Treadle used instead. There is a Recovering Spring to raise the Handle or Treadle. This arrangement secures all the easy motion of the old-fashioned bellows, is worked with much less effort than the Rotary Hand Wheel, and there are no Leather Bands to be burnt, no Cranks, and consequently no "Dead Centres." Three larger sizes than those given below are kept in stock.

A 1-INCH BAR OF IRON CAN BE RAISED TO A WELDING HEAT IN TWO-AND-A-HALF MINUTES.

		PRICES.
No. 0.—THE AMATEURS', JEWELLERS', OR DENTISTS' FORGE AND WORKSHOP, 3 ft. by 1 ft. 6 in., and 2 ft. 8 in. high, fitted as a complete Smithy, including Forge, 6-in. patent Fan Blast, Hearth, Parallel, Vice with Anvil, Emery Wheel, Chuck, 2 Drills, a Cutter, Polishing Wheel, Crucible and Tongs, Ladle, Spanners, Drawers, Treadle and Flexible Band, Automatic Clutch, &c., &c. Weight, 84 lbs. Muffler, for conveying the smoke to chimney, 15s. extra.....		£8 8s. Od.
No. 1.—FORGE, HEARTH (lined with fire-brick), and PAN 18 in. square, 2 ft. 7 in. high. Weight 132 lbs., with 8-in. patent Fan Blast, Spanners, and Emery Tool Grinder, complete, on standard.....		£5 15s. Od.
No. 2.—DITTO DITTO. Weight, 156 lbs. Fitted with 2½-in. Vice and Anvil combined 25s. extra. Muffler, 15s. extra. Extra friction wheels, 1s. each. Spanner, Tool Chest, Lock and Key, &c. Lever and Treadle. Muffler, 15s. extra.....		£7 7s. Od.
No. 3.—FORGE AND HEARTH, 26 in. by 34 in. Weight, 160 lbs.: 10-in. patent Fan Blast, Spanners, and 5-in. Emery Wheel, complete on frame with four legs and two travelling wheels. Lever and Treadle.....		£8 8s. Od.
No. 4.—DITTO DITTO. Weight, 184 lbs. Fitted with Two Travelling Wheels, 5-in. Circular Saw and Bench, and all the attachments of No. 2 Forge, but increased in suitable proportions. Hood, 21s. extra. Muffler, 35s. extra.....		£10 10s. Od.
No. 5.—FORGE AND HEARTH, 30 in. by 42 in. Weight, 250 lbs. With 12-in. patent Fan Blast, Spanners, and 6-in. Emery Wheel, complete on frame with four legs. Fitted with Lever Treadle, Two Travelling Wheels, and Fast and Loose Pulleys for power.....		£12 12s. Od.
No. 6.—DITTO DITTO. Weight, 280 lbs. Fitted with all the attachments of Nos. 2 and 4 Forges, but proportionately increased in size. Hood, 30s. extra. Muffler, 42s. extra.....		£15 15s. Od.
Riveters' Hearths, 15 in. by 15 in., 21s. Braziers' Hearths, 15 in. by 15 in., 27s. 6d. Union and Sockets for 1½-in. tube, 12s. 6d. Flexible Tubing, 1½-in., 1s. 6d. per foot.		

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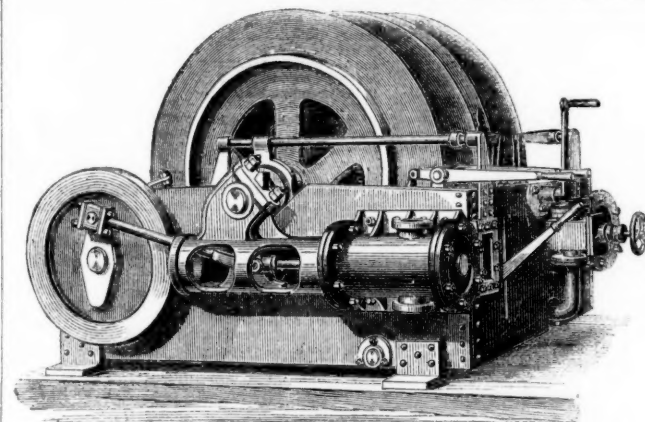
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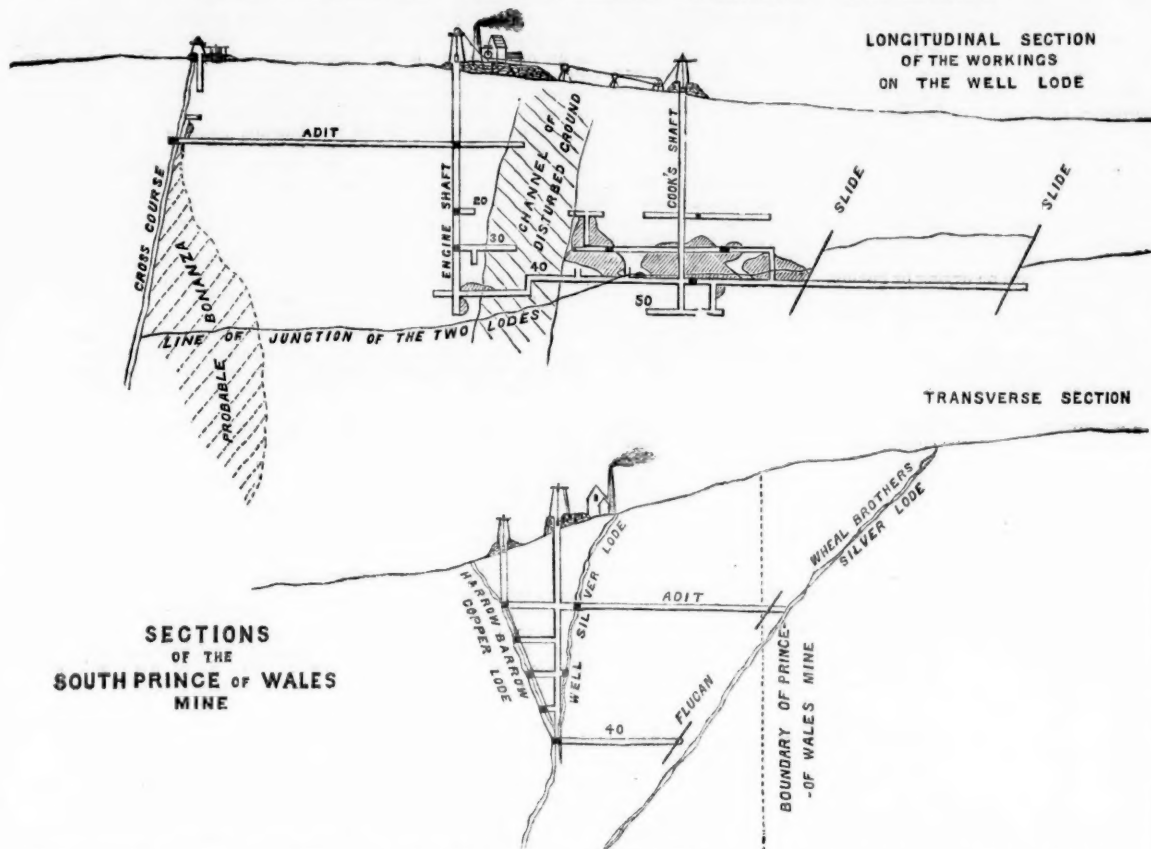
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THE LIST OF APPLICATIONS FOR SHARES AT PAR WILL CLOSE ON APRIL 5.

SILVER MINING ENTERPRISE IN CORNWALL—THE SOUTH PRINCE OF WALES MINING COMPANY.



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ISSUE OF 5000 SHARES OF £1 EACH,

IN THE
SOUTH PRINCE OF WALES MINE
(SITUATE AT HARROWBARROW, NEAR CALSTOCK, CORNWALL.)

The accompanying illustrations will show that this mine consists of three lodes, which all form a junction in depth, and which towards the west are intersected by a cross-course. The most southerly of these lodes has proved very productive for copper and arsenic, while both of the others are true silver lodes. One of the latter is the famous Wheel Brothers lode, which above the adit level yielded large quantities of rich silver ore in the Wheel Brothers, Prince of Wales, and Queen Mines, the last mentioned being now included in the South Prince of Wales. The other is known as the Well lode, and is a continuation of the vein which in the Wheal Mexico, East Cornwall, and Wheal Langford Mines, to the west, contained the richest deposit of silver ever worked in the United Kingdom. In March, 1877, Cook's shaft was sunk on the underlie of the Harrowbarrow lode to where a junction occurred with the Well lode, and a bunch of silver was cut, which yielded upwards of 10,000*l.* to the company then working the mine. This bunch is shown in the shaded parts of the longitudinal section, and will be seen to correspond with the line of junction of the lodes. It was "cut out" on the east by a "head" or "slide" in the country rock, and on the west by a singular disturbance of the ground producing a warp in the lode for some considerable distance. The sudden falling-off in the returns had not been foreseen, and, the company being heavily in debt, a voluntary liquidation was resolved upon. It was, however, arranged by some of the principal shareholders at Birmingham to resume exploratory work at once, and this they have done during the past nine months, with results that have led to the formation of the present company, which, as the following remarks will prove, is on the very eve of becoming one of the greatest mining prizes of the day.

1.—A cross-cut has been driven north in the silver-bearing run of ground to intersect the Wheel Brothers lode at about 70 fms. from surface. In this cross-cut a slookan branch has just been cut, similar to one that occurs about 3 fms. south of the lode in the adit cross-cut. A few fathoms more driving must, therefore, reach the Wheel Brothers lode, and, in all probability, a large bunch of silver. The ground in the breast of the cross-cut is a beautiful buff-coloured killas, precisely similar to that which produced the silver in the Well lode.

2.—The 40 fm. level has been extended east of Cook's shaft through the hard ground encountered after the slide that cut out the silver, and has just passed another slide, the effect of which is that the lode has suddenly resumed a character highly congenial for silver. It seems that the line of junction is heaved upwards between the two slides, and that a further rich deposit must be standing so near the present end that a fathom or two of driving or rising will discover it.

3.—The western ends of both the 20 and 50 fm. levels at Cook's shaft are rapidly improving, and in the former some splendid copper ore, making a good produce for silver, is now in sight, and a small pile of about 5 cwt. has been already broken. This is a similar indication to what was met with in the level below, just in advance of a spot so rich that 1000*l.* worth of silver was cut in 24 hours.

3.—In about 2 fms. more sinking the engine-shaft will reach the junction of the Harrowbarrow and Well lodes, and in the side of the shaft, close to the present bottom, flakes of black silver so rich as to be malleable are already occurring in the joints of the rock.

5.—The adit level has been driven west to the cross-course, where a small bunch of silver ore has been met with. In this bunch some beautiful specimens of native silver have been found, an indication which in the Wheel Brothers lode was a certain precursor of large deposits of ore. The present discovery appears, however, to be on a side branch of the lode, the main body of which is considered to be standing to the north. A cross-cut has accordingly been commenced, and will doubtless cut the lode and a large mass of silver ore almost immediately.

6.—The shallow adit on the Harrowbarrow copper lode was some years ago extended west to the cross-course, and the copper ore taken away at this point was enriched up to 20 ozs. of silver per ton. It follows as a matter of the highest probability that when the engine-shaft shall be sunk to the junction of the Harrowbarrow and Well lodes, and a level driven along the junction to the cross-course, a bonanza will be discovered of vast richness, extending from the adit right down to where the Wheel Brothers lode shall at length fall in and join the other two.

Whilst, however, so much stress is laid on the prospects of rich discoveries, it must not be forgotten that the ground already laid open is for hundreds of fathoms capable of being worked to a profit. The lodestuff is all more or less impregnated with silver in a form susceptible of concentration by jigging and dressing. This has for some months past been proved by setting the work on tribute, and it is found that men will return the silver at an average of 13*s.* in 1*l.*, so that the mine makes a profit of about one-third. Upwards of 400 tons have thus been treated, and the existing reserves of ore fit for concentration are estimated to produce about 30,000 oz. of silver, of which, therefore, about 10,000 oz. will be available for dividends.

It should be added that the mine is very cheaply worked, the total expenses for pumping and hauling being only about 20*l.* per month.

Furthermore, the company acquires the mine at prime cost, without any loading for vendors' profits or promotion money. It buys from the mortgagees of the old company for 2000*l.*, including the full equipment of plant and machinery, and this purchase-money is payable in 1881, a rent at the rate of 200*l.* being paid meanwhile.

In view of the considerable premium at which the shares of the neighbouring Prince of Wales Mine are now standing—solely (and quite justifiably) on the prospect of discoveries being made—the list of applications at par for South Prince of Wales shares will be closed on April 5, and as it is anticipated that more than the total number available will be applied for, the allotments will be made in accordance with the priority of application.

Everything that is here stated is open to the strictest investigation. Specimens of the ore may be seen at the Geological Museum in Jernyn-street, and at the offices of the company's London agents, Messrs. Stuart and Co., 143, Cannon-street, E.C., where plans of the mine may be inspected. Reference is also made to the appended reports from eminent authorities.

The directors of the company are—Edward Charles Swinden, Esq., 123, Golden Hillock-road, Birmingham; John Frederick William Penny, Esq., 115, Coventry-road, Birmingham; G. S. Dowling, Esq., 14, Temple-street, Birmingham; R. Lachlan Bogue, Esq., 17, Oxford-street, Liverpool; and J. Harrison Peel, Esq., 67, Leadenhall-street, London, E.C.; and the registered office is at 14, Temple-street, Birmingham.

The applications for shares may be made by letter, and need not be accompanied by any deposit, and may be sent either to the secretary, Mr. J. Nesbitt Dowling, at the Birmingham office, or to Messrs. Stuart and Co., 143, Cannon-street, E.C.

The full amount of the shares (1*l.* each) will be payable on allotment, after which there will be no further liability.

LIST OF PARCELS OF SILVER ORE CUT FROM THE WELL LOPE IN THREE MONTHS OF 1878, AND SOLD THROUGH MESSRS. JOHNSON, MATTHEY, AND CO.:—

Net dry weight. Tons cwt. qrs. lbs.	No. of ounces of fine silver per ton.	Price per ton realised.
0 4 1 14	7143	£1716 16 0
0 3 0 10	2284	495 0 0
0 3 0 10	1828	410 0 0
0 7 0 6	1617	368 1 0
1 5 0 25	1447	320 0 0
1 5 0 12	1356	307 7 6
0 6 1 16	1302	290 0 0
1 1 3 11	1035	222 7 0
10 18 0 0	265	58 13 6
2 13 3 14	249	45 4 6
9 18 3 14	195	36 15 6
1 14 2 0	178	29 10 9
2 13 1 0	165	26 15 4
1 12 1 0	157	24 10 5
6 19 0 9	145	25 4 6
2 12 0 14	141	26 12 6
11 14 2 21	133	28 16 6
2 13 3 2	91	12 0 10
3 13 2 14	83	9 19 0

62 3 1 6½
* In contrast to the above, it should be borne in mind that the average value of the ores produced from the Comstock lode is only about 12*l.* per ton.

APPENDIX.

Extracts from vol. viii. of the Transactions of the Royal Geological Society of Cornwall:—

"After this the mine remained many years unwrought; but in 1833 it was reopened under the name of Wheal Brothers."—De la Beche, Report, p. 613, Cornwall Geol. Trans., v. p. 140, table xciii.
"Portions of argilliferous earthy brown iron ore (silver gossan) left by the former adventurers in shallow parts of the mine were now extracted and sold for between 150*l.* and 200*l.* per ton. So greatly does the ore differ in quality that some parcels of it brought no more than 2*l.*, and others containing 0.059976 their weight of silver (= 1959 oz. per ton), as much as 500*l.* per ton in the market."—Captain Knott, MSS.

"At the 30 fm. level masses of native silver weighing many pounds each occurred in a part of the lode which was worth from 500*l.* to 600*l.* per fathom. But great part of the ore when brought to the surface contained only from 8 to 10 oz. 0.00245 to 0.00306 its weight, although when (dressed) prepared for sale it yielded (80 oz. per ton of ore) 0.001836 its weight of silver."—Percival Norton Johnson, Esq., F.R.S., F.G.S.

"Wheal Sisters, opened also in 1833, on an eastern part of the same lode, afforded ore which, resembling for the most part that of Wheal Brothers, containing from 0.00459 (= 150 oz. per ton) to 0.07344 (2400 oz. per ton) its weight of silver. Portions of it were, however, mixed with from 0.15 to 0.2 their weight of lead. Small quantities of the silver ore were sold at 20*s.* per lb., and some parcels found a market at from 400*l.* to 500*l.* per ton, but the ordinary price was between 30*l.* and 50*l.*."—Capt. Knott, an agent of the mine, MSS.

"The East Cornwall Mine was opened a third time, in 1848, under the name of Wheal Langford. For several years the ore afforded from 0.001224 (= 40 oz. per ton) to 0.000468 (= 1975 oz. per ton) its weight of silver, and its price ranged between 10*l.* and 550*l.* per ton. In June, 1855, 2 tons 6 cwt. 2 qrs. 6 lbs. (sold at 509*l.* per ton), realised 1184*l.* 15*s.* 9*d.*"—Capt. Knott, an agent of the mine, MSS.

"Wheal Mexico, wrought to an inconsiderable depth on an eastern part of the same lode during 1847-8, afforded the chloride of silver, largely mixed with silty clay, granular quartz, and the carbonate of iron. Some portions of the ore contained 0.001224 (= 40 oz. per ton), 0.026316 (= 859 oz. per ton), their weight of silver. The prices generally ranged from 5*l.* to 200*l.* per ton, but small quantities free from impurities were sold at 2*l.* 10*s.* per (avoirdupois) pound."—Capt. Knott, manager of the mine, MSS.

"The total output of silver during the period comprised in the above extracts we have been unable to ascertain; but, as we find it publicly stated that one of the mines in question (Wheal Langford) yielded a profit of upwards of 90,000*l.* in two years, it is clear that the total production was very large.

Extracts from a lecture delivered at the Plymouth meeting of the

British Association in 1877, by Prof. Warrington W. Smyth, F.R.S., the Chief Mineral Inspector for the Crown and the Duchy of Cornwall:—

"On the west of Dartmoor we appear to leap at once into a crowd of nearly parallel lodes, which continue with but little interruption to a mile beyond the granite protrusions of Hingston Down and Kit Hill. And as a proof of the vast importance of the lines in which I hope to interest you, and which on the ordinary map look so short and meaningless, I would crave permission for a few minutes to employ, as it were, a larger scale, and to glance at a single example of the social and commercial aspect of the study. A small patch of ground on the west of Tavistock (and on the skirts of Hingston Down), showing one of these lode-lines of three miles in length, is the scene of the working of the Devon Great Consols Mines. Here the operations, begun only in 1844, have yielded up to April last a total amount of 3,226,426*l.*, and the clear profit to the shareholders has been 1,192,960*l.* Employing from 600 to 1000 men, the excavations in the solid rock have amounted in shafts and in winzes to upwards of nine miles in length, in galleries or levels to more than 30 miles. At Harrowbarrow (on the southern slope of Hingston Down) at the present moment a northern lode (the Well lode) is a flookan exhibiting such a course of ruby silver ore (pyrrargyrite), with its faithful accompaniment of chalybite, as to be worth hundreds of pounds for every fathom."

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES *—No. CXLVII.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal.)

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SURFACE MINING.

From the last few lectures the reader will have perceived that many of the operations we have described might, perhaps, be considered rather as surface than underground operations. Indeed many cases occur where surface mining is found to be the best preliminary to a later deep or underground working. From this point of view surface mining operations may be divided into two broad classes. First those which are evidently purely surface operations, generally carried on in deposits of no great thickness, and lying uncovered, or if covered with only a very thin overburden. Secondly, those operations which attain a great depth, and may, therefore, be called deep surface workings. These are usually carried on in deposits which are of considerable thickness, and which may be covered with a greater or less amount of overburden.

When a deposit is covered by a superposed layer of alluvium, or other strata, the first question which occurs as to the mode in which it shall be worked is whether some modification of surface or underground mining shall be adopted. The advantages of surface operations are:—1. That the deposit can be completely exhausted. 2. The expense of timber and other material for keeping open roads and levels is avoided. 3. The oversight is much easier, both as regards the workmen and also as regards the nature and carrying on of the operations. On the other hand a great amount of material must be removed besides the mineral actually worked. This is the chief consideration which determines the adoption of surface or underground workings, the relative thickness, and therefore amount, of overburden which must be removed for a ton of the useful deposit.

The laws respecting open workings are quite distinct from those of underground mining, and in some cases it may be of more advantage to the owner of the mineral to have it classed under one category or the other than to those working the minerals. In this country it has often been considered that mines or underground workings are those which require to be carried on by artificial light, and those are open workings for which daylight suffices.

In what we have called deep surface workings the mode of occurrence of the deposit will be of decisive importance in fixing upon one or other of the various modes of surface mining. When the deposit lies comparatively flat it will be opened out by removing the overburden where it is thinnest, and then going down to the bottom of the deposit by overtopping. When the deposit lies at a considerable angle it will be best opened out at the outcrop, forming an ordinary quarry. Even in this last case if the deposit is very thick, and there is any amount of overburden, it will be found most advantageous to adopt the method of understoping, and the workings will as they advance resemble more those of an immense lode open to the surface, which is being worked by understoping. When the deposit is not very much inclined, and the workings cannot be commenced at the outcrop, it will be necessary to choose such a place for the commencement as allows of ample room for heaping the overburden as the deposit is uncapped. As in almost all cases water may be expected to be met with, it is generally advisable to choose the deepest portion of the deposit to commence with, as by fixing a pumping engine at this point the workings can readily be drained. When the workings are near a hill side the water may be carried off by an adit. When this is impossible a pumping shaft may be timbered in the overburden as it is tipped back into the open space left vacant by the removal of the deposit, and the shaft may likewise be connected with the face of the workings by a level timbered through the waste. In other cases it may be found best to sink the pumping shaft in ground which is to remain undisturbed, and to convey the water from the face of the workings to the bottom of the shaft along a level timbered either in the replaced overburden or in unbroken ground. In most cases the best and simplest arrangement is that where the shaft is at once built up in timber, in the first excavation made to the bottom of the deposit, a timbered level covered with lagging boards being carried from the bottom of the shaft to the faces of the workings. As soon as the faces have advanced far enough the overburden as it is removed is tipped over and around the level and the shaft. This shaft is sometimes used as a winding shaft.

In stiring the waste and overburden care should be taken that the heaps are made in places from which they will not have to be removed in the course of a subsequent working. There is generally a clause in the lease to the effect that the waste shall be put back in the old place, and the surface soiled and dressed for agricultural purposes. In this case such a plan of working must be adopted that the working faces are at one end of the workings and the waste heaps at the other, so that as the works advance the waste is carried back, and deposited at once in its permanent resting place.

The object of working the deposits in a stepwise fashion (understoping) is to avoid vertical walls of any great height, as the material of which the deposit, and more especially the overburden, is composed is generally not of a character to stand for great heights without support. Whether the total depth is slight or great high faces are in themselves very inconvenient to work for most materials. Another reason for the use of understoping, especially in the working of slate quarries and the like, is that advantage may be taken more readily of the jointage and bedding of the deposit; and in such deposits the fall of the material from high faces results in breaking an otherwise valuable material into worthless fragments, besides bringing the material to an unnecessarily low level, from which it must be raised by horse or engine power. In many districts in Germany the size and form of the stopes are determined and regulations on the subject issued by the Government inspection. The following regulations are made for the lead workings at Bleiberg, near Aix-la-Chapelle. The deposit, which has but a slight inclination, consists of a sandstone bed, slightly coherent, impregnated with galena. In the deposit, which in some places is upwards of 90 yards in thickness, thin conglomerate layers occur. In these thin conglomerates a vertical face is allowed, in other portions of the deposit the faces of the stopes are inclined at an angle not exceeding 40° to the horizontal, where the deposit is very loose; and not exceeding 75° where the deposit is most compact. The height of the steps varies between 5 yards and 13 yards, and the width of the stopes from 4½ yards to 7 yards.

In South Wales the iron ore is got in many places by open working, removing the overburden. The workings are generally commenced at a point where the band of ironstone crops to the surface. As the workings advance the waste is tipped behind over the ground already worked. A regular inclined tramroad is formed in the centre of the waste, up which the ore and overburden from the working faces are drawn in wagons by engine power, the latter being

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. Von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

run off on side rails to be tipped. When the workings have advanced some distance, so that the overburden has attained a thickness of 30 to 40 ft., a stepwise arrangement, with stopes about 5 yards high, is adopted for removing the overburden. The waste is often tipped to a greater height than the original surface, so that the whole of the overburden can be tipped as the workings advance.

In many cases it is found advantageous to prosecute the removal of the overburden and of the deposit not simultaneously, but during special seasons of the year. The overburden is then removed during spring and autumn, whilst the deposit is worked during summer and winter, since during the winter the surface is often frozen and is always harder to remove than at any other time of the year. In the summer it will be found much cooler for the workmen in the lower part of the quarry than at the surface, besides that at this portion of the year less water will be met with at the bottom of the quarry.

As a last example, and as one of the simplest of mining surface operations, that of the winning of turf may be cited. The chief difference caused in the mode of getting turf arises from the possibility or otherwise of draining the surface. When this cannot be done, and the turf lies for the most part under water, it must be fished out with a sack-like apparatus. The turf is then forced into rectangular blocks, and afterwards spread out to dry. When the peat can be drained this is generally done, at least to a greater depth than it is intended to remove. The turf is cut in rectangular blocks, laid out and turned over in the sun to dry. When the turf is thick the upper 4 to 6 in. are first removed and dried, and the next layer is removed after the fresh surface has been exposed sufficiently long to become dry; so that after lifting out with the spade it simply requires to be turned over to dry on the other side. According to the size of the peat field, and the thickness of the peat, it may be arranged to be worked in steps, the one following the other, so that it is not left long after being dried on the upper side before it is turned over. The working away of each layer proceeds in a step-like arrangement, the first cut taking a width of 8 to 12 in., which is turned over and thrown back sufficiently far that it has dried sufficiently to be removed before the other portion of the peat on which it rests is removed. Three or four persons may follow each other, turning over a width of 8 to 10 in., so that each must set his turf blocks 30 to 40 in. back from the edge, not to be in the way of the following turf getter. The turf is often covered with earth, &c., which must be removed; it is advisable, however, not to uncover and drain more peat than can be prepared and removed during the summer season, since turf when once frozen becomes brittle and unfit for forming into blocks. Sometimes it is intended that the peat shall grow again, when the drainage arrangements are blocked up after the intended portion has been removed, since the peat requires to be under water to grow properly.

THE COAL PLANTS.

Mr. B. HOLGATE, F.G.S., read a highly interesting paper to the Yorkshire College Students' Association, at Leeds, on Tuesday, "On Coal Plants." Prof. GREEN, M.A., who occupied the chair, remarked that it was a common error to suppose that coal was only found in beds belonging to what was known as the carboniferous period. Such was not the case, for beds of coal were found in formations of all ages. Wherever and whenever the necessary climatic conditions existed the formation of coal followed. This we may say has been shown by the large quantities of coal that lie concealed beneath Permian, Triassic, and even Liassic strata beyond the margins of the known or visible coal fields. In fact, the question of the existence of coal under the cretaceous and other formations of the South of England is one that as yet has not been determined. Mr. Holgate commenced by stating that our knowledge of the fossil plants of the coal measures was far from complete. This was mainly due to the fact that the majority of the specimens found were but imperfectly preserved. The leaf scars in the stems could be distinctly recognised, but the structure could not be traced. Fragments of petrified wood were found by concretionary action in the shales separating the beds of coal, and large quantities of resinous spores were found in many coals, some of which, especially the large flaring coals, were mainly made up of spores. The vegetation of the present day was essentially distinct in its general character from that which flourished at the time when coal now found in Great Britain was in the course of formation. There were then no oaks, ashes, beeches, or indeed any of our hard wood or fruit trees; palms, yams, bananas, canes, and cereals were also absent. There existed, however, trees allied to the pines, and trees allied to the club moss, but of far greater size, since they grew to a height of even 60 ft., whereas the modern club moss was a low creeping plant. The calamites said to be represented in our day by the Equisetaceae, of which the horsetail of our swamps and ponds is a familiar example, were also very abundant when coal was being formed. The calamites generally occur leafless. Sigillaria, however, appears to have contributed more than any other plant to the production of coal, but it has no living representatives; it is easily distinguished from the stems of other plants, and externally of lepidodendron, of which family it is a member, by the flutings and striae of the bark being deposited longitudinally or parallel to the axis of the trunk, and impressed with leaf scars at regular intervals between the furrows. During the carboniferous period sigillaria attained grand proportions, and Sir Charles Lyell mentions an individual specimen 72 ft. in length, found at Newcastle, whilst several stems were found standing in the upper surface of a coal seam near Manchester. The lepidodendron was also a well-known carboniferous plant, as well as an abundant one, a specimen found at the Jarrow Coal Mine having been more than 40 ft. in length and 13 ft. in diameter near to the base. The lycopodites were a genus allied to the lepidodendron, and these were amongst the principal plants that led to the formation of coal. Our knowledge of the fossil plants of the coal measures, it may be said, is far from complete, yet to the geologist or the geological student there is no study that can be more interesting.

MANUFACTURE OF COMPRESSED FUEL.

An interesting paper on the successful manufacture of compressed fuel at Port Richmond, Philadelphia, chiefly descriptive of Dr. C. M. Cresson's and other plans of drying the lumps, was read at the recent meeting at New York of the American Institute of Mining Engineers, by Mr. E. F. Loiseau, who stated that after 12 years' struggle he has obtained results which satisfy him that little remains to be accomplished to make the manufacture of compressed fuel from coal dust one of the most important industries of Pennsylvania; he has, however, still only reached the point at which many other inventors have stopped; he has ascertained what he believes will make his process successful. The mixture which he uses is 91 per cent. coal dust by measure and 9 per cent. pitch. He uses a Dietz's mixer, which with a temperature of 170° to 212° Fahr., brings the mass to a plastic condition in 2½ minutes.

The moulding press is composed of two rollers geared together, on the periphery of which is milled out a series of semi-oval cavities, connected with one another, in order to facilitate the dropping of the lumps from the moulds on an endless belt placed underneath. He states that moulding rollers accomplish the compression of materials more by a squeezing or bruising action. They possess the great advantage of squeezing the materials so that the feed is only a short time between the rollers. This advantage is a very important one, and it will not be surprising, he thinks, if rollers, as a matter of fact, are destined hereafter to play a great part in the manufacture of artificial fuel. He explains that the particles of coal coated with pitch receive no pressure at the first point of contact from the face of the rollers, but from the drawing-in action of the two revolving rollers. The squeezing pressure which is thus exerted on the materials is produced entirely by the gear of the rollers, because, through the rotating motion, the plastic mixture is drawn into a gradually decreasing compass, and must be highly compressed and moulded. This reduction takes place regularly, both rollers possessing an equal speed. The speed being equal, the product leaves the rollers in the shape given by the moulds.

While experimenting with the fuel in different heating apparatus, he ascertained that when the lumps were but half consumed, if the

poker was handled roughly, the particles of coal would disintegrate, and would fall unconsumed through the grate bars into the ashpans, seemingly increasing the quantity of ashes, but in reality losing the heating power of the unconsumed coal. This was caused when the lumps were red-hot to a depth of about ¼ in. Each lump would then become, so to say, a small retort. The pitch which held the particles of coal together in the centre of the lump would gradually be drawn through the red-hot crust of the lump, and be consumed, and when the lump itself was partly burnt, and reduced to about one-third of its volume, there was not sufficient pitch left in the nucleus to keep the particles of coal together until they were consumed. In order to remedy this defect he mixed with the anthracite coal dust 8 per cent. of powdered bituminous coal. The result was a better fuel, which did not disintegrate, coked in the fire, and was almost entirely consumed, leaving but a small quantity of ashes when compared with the fuel made from anthracite without the addition of bituminous coal.

The fuel is supplied in egg-shaped lumps, and burns satisfactorily. He claims that whilst the double machine of the Société Nouvelle des Forges et Chantiers de la Méditerranée does not exceed 96 tons in 24 hours, the lumps weighing very nearly 3 lbs., his press will manufacture in one hour 13 tons of lumps weighing only 2½ ozs. each. These lumps require no drying or baking. They are conveyed to a screen in eight minutes, and that time is sufficient to cool the lumps; they are then ready for delivery. The pressed fuel would, he thinks, be much improved if the coal dust were previously washed, and in the erection of new works it would be essential to provide washing apparatus for that purpose. The difficulty now seems to be to secure a sufficient supply of coal dust at the shipping points, and as there is a market for pea and dust the coal companies are indisposed to sell the dust proper at such a low price as would enable the artificial fuel makers to compete with the companies' round coal; but Mr. Loiseau considers that whether the manufacture of the pressed fuel be carried on by the coal companies or by special makers the community would be benefited by the utilisation of coal dust, which has hitherto been a worthless material.

NATIONAL BOILER INSURANCE COMPANY.—The annual report of Mr. HILLER, the chief engineer—that for 1879—has just been issued. It is suggested that a few rules might be framed by Government for the guidance of boiler makers and owners, but should be such as will not impede improvement—for example, that no iron of less tensile strength than 20 tons per square inch should be used in the construction of steam boilers; that the maker's name and the quality of the iron should be legibly stamped upon each plate; that all boiler makers should stamp, in a conspicuous part of the boiler, their name, address, its year of make, and the pressure per square inch on safety valve for which the boiler is suitable; that all stationary boilers should be so set that their condition may be reliably ascertained; brickwork flues to be large enough to allow access to every part, or so constructed that the boiler may be examined thoroughly when desired. These flues can be thus arranged without reducing the efficiency of the boilers, &c. It is pointed out that this plan involves, in brief, registration, inspection (beyond that by attendants), and careful investigation regarding each explosion. These would neither entail useless expense nor impede progressive improvements, but would check carelessness and reduce the number of explosions. It is declared to be absolutely essential to the safety of all boilers that all the external flues be either large enough for a man to pass through from one end of the boiler to the other, or if the boiler be very small, that large openings, fitted with iron doors, be made to each end of the flues, so that complete inspection can be made; that brickwork in contact with plates should be reduced to a minimum breadth; that at the lower part should never exceed 4½ in.; that boilers with brick flues should rest on suitable narrow fire-clay blocks instead of upon broad mid feathers or side walls of brickwork; that boilers should never be placed in confined or damp situations; and if want of space necessitates their being placed below the ground level they should be so set as to render it impossible for any external moisture to reach them; and that owners should spare no effort to clean and completely prepare their boilers for reliable thorough inspection. Neglect of this renders it impossible for an inspector, however skilful and careful, to inspect satisfactorily, and the non-detection of a defect may endanger a boiler, and perhaps lead to loss of life.

PIVOTING EXCAVATOR.*

The pivoting excavator, designed by M. Sayn, consists of an iron truck running on six wheels coupled, which carries a platform capable of turning freely round a vertical central pin, which platform bears the engine, the machinery for the transmission of motion, and the framework supporting the excavating gear. The machine can excavate in front by means of its chain of buckets, discharging the material behind by a movable shoot into wagons, thus enabling the whole of the bottom of a cutting to be used for the removal of the earth. It can also work sideways along the slopes of the cutting, to widen it; in this case the excavated stuff is delivered into a long train of wagons at the side. It can be modified by altering the buckets and using a long beam for carrying them, when it is available to work at the edge of a cutting for widening it. The machine can also be readily transferred to a barge, and by varying the form of bucket can be employed as a dredger. Lastly, by substituting a jib for the beam, the apparatus can be used as a movable steam crane turning on its axis. The object is to economise plant by making a machine that, with only slight modifications, shall be capable of satisfying several different requirements.

—By A. MARNIER: Revue Industrielle.

* From JAMES FOREST'S "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institution of Civil Engineers.

CASSELL'S PUBLICATIONS.—Science for All, part XXIX., contains—the Sun Telegraph, by Capt. Cooper King; Dew and Hoar Frost, by Dr. R. J. Mann; a Frog, by Dr. A. Wilson; Why a Top Spins, by W. A. Lloyd; and Deep Sea Life, by Mr. P. H. Carpenter. The History of Protestantism, part X., extends from the time when Zwingle, preaching from the passage in Exodus, argued to the conviction of many of his hearers that if the lamb was simply a symbol in the Passover, the bread can be nothing more in the eucharist to the death of Frederick the Wise, elector of Saxony. Great Industries of Great Britain, part XXVII., contains continuations of the treatises on Industrial Legislation, Shipbuilding, Cotton, Wool and Worsted, Hemp, Flax, and Jute, Pottery and Porcelain, and Iron and Steel. Knight's Dictionary of Mechanics, part XL., extends from Lance-Bucket to Leather Scouring Machine. It is announced that the second and third volumes can now be supplied to those who desire to complete at once.

AMERICAN ALMANAC.—The third annual edition—that for 1880—of the interesting little volume—the American Almanac and Treasury of Facts, statistical, financial, and political—edited by Mr. A. R. Spofford, the librarian of Congress, has just been issued through Messrs. Tribner and Co., Ludgate Hill. The amount of information given is enormous, and although much is necessarily of only local interest there is much that will be of interest to the European reader, and especially to capitalists who have money embarked in American industries. The almanac will be generally recognised as a very valuable work of reference.

BLASTING CARTRIDGES.—The invention of Mr. T. N. HEIDEMANN, of Cologne, relates to improved means for augmenting the effect of the charge in holes drilled for blasting purposes. With this object the inventor employs cartridges of compressed blasting powder specially manufactured. Powder prepared in the usual manner from saltpetre, sulphur, and carbon, is first brought to a high degree of specific gravity—that is to say, from 1.72 to 1.75—by means of hydraulic pressure. The powder, after being granulated in a granulating machine, is then pressed in metal moulds when in a wet condition by very powerful mechanical pressure, whereby it is formed into cartridges of a high specific gravity of from 1.70 to 1.72 of suitable length, and of a diameter corresponding to that of the hole in which the cartridge is to be used. An opening is provided in the middle or at the side of the cartridge for the insertion of the fuse.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Dynamite, now very extensively used in mining operations, is nitro-glycerine mixed with a dry earthy substance. Glycerine itself is an oil obtained in the manufacture of soap. This washed with nitric and sulphuric acids (and then washed with pure water to free it from the acids) forms nitro-glycerine. Guncotton, in the same way, is cotton saturated with nitric and sulphuric acids, and washed to get rid of the acids. There is a blasting gelatine of greater force than either of the above in use on the Continent, and used latterly in the St. Gothard Tunnel. This consists of nitroglycerine and colloidion, of the former 93 to 96 parts. The force of these three blasting commodities may be given as follows, taking nitro-glycerine as the unit—Guncotton, 0.67; dynamite, 0.69; gelatine, 1.2.

We know nothing of the Plympton Mining Company or of the parties connected with it, and cannot, therefore, answer the question put to us by more than one correspondent.

We have received this week a long anonymous communication respecting a mine near Tavistock; and we can only repeat that we dislike all anonymous attacks, whether upon men or upon mines, and anonymous writers should at least pay the postage of their letters.

At D'Eresby Consols the Gorse lode looks better. The heading is 3 ft. wide, with patches of lead and blende throughout.

The sampling at Wheal Crebor is 430 tons of ore of better quality than the last. At the meeting the agent estimated it at 400 tons this time, and 500 to 550 tons for the following, so that about 1000 tons will come to the credit of next meeting, and show a large profit.

The trial in the new western ground at Carnarvon Copper, the agent writes us, "is looking very promising; there is a strong mixture of mundic and black jack, just the same kind of lode that there is about the outcrop in the old mine, where so much copper was raised. There are now strong spots of copper mixed with the mundic and blende, and in the spar of the lode." This, as we have said before, may make a new mine. At the old mine forking the water progresses.

Glenroy is yielding some rich stones of lead ore in the bottom level north, and the shaft is to be sunk with all speed.

We look for a good improvement in Parys Corporation, and also a good rise in shares. The market was knocked down from 37s. 6d. to 25s. through market operations alone.

MR. WILLIAM H. H. WATSON, DEALER in RAILWAY STOCKS and MINING SHARES at net market prices of the day.

A few months ago W. H. H. W. called particular attention to Wheal Crebor, and supplied his clients with them at 5s. to 10s. each. He would now call attention to POLROSE MINE, in which there may be a great rise in a few months. Shares are now £2½, £2½.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Original Correspondence.

THE FLAGSTAFF SILVER MINING COMPANY OF UTAH.

SIR,—It is at all times very unsatisfactory to reply to anonymous correspondents, and I should not in this instance have noticed the letter of "Vigilant" which appeared in the Journal of last week did it not contain statements which are calculated to mislead. He has thought fit to question the contents of my letter which appeared in your Journal of the previous week, or rather that portion of it referring to the title of the Flagstaff Mining property, and I may remark that had he known the true position in which the late litigation left the various suits to which he refers he would not have committed the blunders which he has, whether knowingly or otherwise, conveyed to you as facts. He infers that the statement contained in my letter is erroneous, and quotes, first the suit of Billing v. Tarbet to endeavour to show that the title to the property is not clear. But would it not have been better for him to have ascertained the real facts of this case before he brought his observations so prominently before the public? He states that "the suit of Billing v. Tarbet affecting the principal mine has been appealed to Washington." Now from what source did he obtain this information? Although I have not seen the Salt Lake Daily Tribune of Jan. 31, I have seen that of Feb. 15, in which I read that the suit of F. W. Billing v. Helen Tarbet et al. came before the District Court of the Third Judicial District, Utah Territory (which is the Court of First Instance), and a decree was made on Dec. 9, 1879, placing Billing in absolute possession of the three-fourths of the South Star and Titus Mine claimed by Helen Tarbet, the defendant (the remaining one-fourth being already in his possession), and it further enjoins the defendant from setting up any claim of title or possession to said premises or any part thereof. It further states that a motion for a new trial was pending, but that the parties to the litigation have since come to an arrangement by which these long-standing disputes will be closed. So, sir, you will observe that not only has the case not been appealed to Washington, but that it has not even gone to the Supreme Court of the Territory.

With respect to the suit Varnes v. Billing, I was informed some time since, on good authority, that that suit had been amicably arranged, and that a clear title to that part of the property can also be obtained. Your correspondent evidently centres his attack upon me by quoting the case of Erwin Davis v. The Flagstaff Company et al., but here he has again fallen into a grave error. If he knows anything about this suit he must also know that it in no way affects the title to the property. It is simply a money claim against the company, having no reference to title. The Supreme Court of Utah, in June last, decided in favour of the company, and held that Davis never had any mortgage or lien upon the property, and through this decision the title to that valuable but small portion of the lode containing the main workings and shafts which remained to the company under the decision of the Supreme Court at Washington in the Flagstaff-Tarbet suit reverted to the assignees of the judgment creditors of the company, and whatever proceedings Erwin Davis may take can only be against the company, and will in no way affect the title to this property, and considering the very strong terms in which the decision is couched I fail to see that he has the slightest chance of succeeding should he be so injudicious as to carry his appeal to Washington. Besides, the Flagstaff Company has a counter claim against him for far more than the amount he claims from the company.

I submit that I have disproved the statements of "Vigilant" as regards the litigation suits. But I must add a few words more respecting the "title" question to which your correspondent refers, and he makes the extraordinary statement that "there would appear to be ample grounds for Mr. Pearson's circular stating that the company did not 'know much about the title.'" Now, I should think that even Mr. Pearson himself will feel aggrieved at this. Why did he not some months since, when ventilating his "proposals," state through the medium of your valuable journal that he himself was in a position to give a clear title to the properties? But, apart from this, it has been ascertained that a clear title can by the acquiescence of the company be obtained, which acquiescence would, no doubt, be given in case of the shareholders being equitably dealt with.

You may depend upon it, Mr. Editor, that the members of the syndicate, through their trustees, will give due attention to the question of "title," &c.; and I have no doubt also that they will estimate the observations of "Vigilant" at their proper value, "that

the American owners are anxious to do their English Cousins a liberal turn, or perhaps there may be some other reason." It is, however, well that he offers no opinion on the subject, otherwise he might fall into the same error as he has done respecting the litigation suits.

Before I close this letter, which I must apologise for making too long already, I desire to make a remark respecting your correspondent's letter—"Eye-opener"—which also appeared in your last week's Journal. He states—"Your readers can estimate for themselves the value of a mine that has been worked for eleven years," &c., though, strange to say, "the present owners have not worked it for the last 12 months, and are now trying in several directions to get rid of it." The very fact of the mine having been worked for so many years and producing such large quantities of ore is in itself a proof of its enduring character, which when in full work never turned out less than 12,000 tons of ore a year, and the only reason of its not having been worked to any extent during the last twelve months has been in consequence of negotiations having been on foot for the repurchase of the properties; but it is something quite original and almost ludicrous to observe it stated that the owners have been hawking about a property of such known value as the mining claims upon the Flagstaff lode.—*Great Winchester-street, April 2.* A. A. DE METZ.

FLAGSTAFF MINING COMPANY.

SIR,—Respecting the letters that have recently appeared in your Journal as to the value of the Flagstaff shares and the prospects of the syndicate, allow me, as one who is in a position to judge, to give an opinion:—1. The Syndicate are thoroughly satisfied of their ability to acquire a perfectly valid title to the mine, the great value of which has, I believe, never been called in question.—2. The shares, at the present quotation, in view of the plan and progress of the syndicate, are certainly much below their real value.—3. The lowest net profit of the mine during ten years of working, has never been below 20,000l. For any one year, with lead at \$25 per ton, whereas the present price is more than double that figure; hence the net profits would be proportionately increased. Although the Flagstaff Mine produces largely of both gold and silver, it is well known that the principal product, commercially, of the mine is lead.—4. The main question, it occurs to me, now is—When is the syndicate to bring matters to a focus? A fair estimate for the monthly profits of the mine when in full and proper working, as is contemplated, may be stated roughly, and I think reasonably, at not less than 3000l.; hence every four weeks of delay now may be read as so much of an immediate and positive loss to the new company, the mine being considered as capable of netting this amount for many years to come. I can hardly think the syndicate could have looked at the matter in this light; otherwise the delay, which I am sure is highly unavoidable, for other reasons besides the one named, would not, I think, have taken place. It is to be hoped that immediate action will now ensue.

AN ORIGINAL SHAREHOLDER.

FLAGSTAFF SILVER MINING COMPANY.

SIR,—“One of the Syndicate,” in last week's Journal, speaks confidently respecting the trustees and their *bona fide* intention of carrying out the “scheme.” It would be very useful to know what their scheme is. May it be to purchase the mines and give them to the shareholders? If so, how do they propose to get them until they are free from litigation? Or is it that the syndicate have purchased a quantity of shares at low prices, and are willing to sell them at high prices, mines or no mines? If the syndicate are really in earnest as to the mines the best thing they can do is to get up a compromise between all parties, and then put some reasonable scheme forward, and I shall be one of the first to endorse it.

DEBENTURE HOLDER.

FLAGSTAFF SILVER MINING COMPANY.

SIR,—A letter from “Vigilant” respecting the litigations of the parties now in possession of the mines upon the Flagstaff lode is certainly a startling announcement to follow so soon upon the secretary's letter. It is the first that I have heard of any litigation, and I certainly think that the shareholders should have been made acquainted with it. Very likely we shall be told that there is nothing in it—that it is “blackmail,” &c.; but, at all events, I think it was the duty of the directors to have made the shareholders acquainted with the fact that these litigations were pending, a decision respecting which cannot be obtained sooner than three years hence; it would have been a guide to many of us in regard to dealing with our shares during the recent revival of the shares in the market, and I for one deprecate the negligence displayed in not informing the shareholders.

A SHAREHOLDER.

EGYPTIAN DAIRA KHASA FIVE PER CENT. SCRIP.

SIR,—It is not generally known by the public that this scrip is carrying the dividend for two half-years. The total amount is 697,460l., requiring 34,873l. annual charge for interest, and the present quotation is 65 to 66. Comparing the price with the Egyptian Preference at 88 to 89, and the State Domain at 87½ to 88½, and the Turkish 4½ per cent. at 67½ to 68½, the Daira Khasa would seem a desirable investment at present prices, as *ad valorem* it is 20 to 30 per cent. cheaper.—*London, March 31.* B. E.

[For remainder of Original Correspondence see to-day's Supplement.]

FOREIGN MINES.

The directors of the West Prussian Mining Company have declared the usual quarterly dividend on the preference shares at the rate of 8 per cent. per annum, and an interim dividend on the A shares at the rate of 4 per cent. per annum.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, March 31: Produce ten days (second division of March), 7750 tons. = 30032l.; yield, 43 ois. per ton. Produce same day from large temporary admixture of killas and quartz.—*Cuiabá:* Haulage of 16 days, 160 tons; yield, 2 ois. per ton.

DON PEDRO.—The mine captain's report for February states that the stoppage of the 60-ft. wheel for repairs, water issuing in the mine, debris washing down and filling stopes which has to be cleared, render it impossible to calculate the loss occasioned to the company by this defective piece of machinery. Four-fold back stays put in, and diagonal stays or struts fixed from the same to loading each side of crank to prevent oscillation. Ore raised during the month, including debris cleared from inclines (50 fm. level, 40 fm. level, and stopes), is 675 tons dry weight, besides which 53 tons cleaned-up and treated from the adit level, leakage of cars, &c.

ALMADA AND TIRITO CONSOLIDATED.—Telegram from Mr. Clemes, March 18: I have remitted you ores, \$1600.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$75,000, from 1190 tons of ore. Refinery, \$55,000.

R. Rickard, March 10: Since my last operations, both in the mine and the smelting-works, have been carried on with usual regularity. The 200 main drift has been extended 31 ft., the last 10 ft. driven being in very fair grade ore; the dip of the ore is north-easterly, and is in a line with the large ore bodies opened on the 400 level, but we cannot yet say what extent the ore is in this new discovery. The 200 westerly drift has been extended 6 ft. in very hard limestone without any change since my last. The 200 north-west drift has been advanced 7 ft. in very favourable ground. The 400 north, from No. 15 chamber, has been drifted 17 ft.; the face of the drift is still in shattered limestone. A drift has been run east from No. 15 chamber, 40 ft. below the 400 level, a distance of 62 ft., all in good ore. The 600 main drift has been extended 17 ft. in limestone without any change to mention. The 600 west, from south fissure, has been extended 16 ft. in very favourable ground. The 600 No. 2 cross-cut, west from south fissure, has been advanced 17 ft.; the present end is in more favourable ground for ore than it has been for some time. The 600 winze, sinking below No. 13 chamber, is now down a total depth of 138 ft. without any change. The drift from the winze on north fissure drift has been extended 16 ft. in very favourable ground for ore. A rise has been started from the 600 north, and is now up 10 ft.; the object of this is to explore the ground standing between this point and the north end of No. 14 chamber. The 800 west drift has been advanced 8 ft.; the present end is in very hard limestone. The 900 west drift has been extended 6 ft. in very favourable-looking limestone. The 900 north cross-cut has been drifted 12 feet without any particular change to mention. There is no change to mention in any of the chambers; they are all looking well, and turning out the usual quantity of ore. The furnaces are in good working order, and smelting their average quantity of ore.

RUBY AND DUNDERBERG.—March 13: Dunderberg: The Home Ticket cross-cut, in the 400 ft. level, has advanced 13 ft., now in 106 ft., the last 10 ft. of which was in solid ore, as cabled to you on the 10th. The ore body appears to increase in size as it goes down, being wider at the bottom than at the top of the drift. We have drifted 6 ft. each side the cross-cut, which is 6 ft. wide (say), each north and south, and still in ore; the ore body, therefore, so far is 10 feet wide and 18 ft. long, and both ends look well, as if the ore continues for some considerable distance; this is, no doubt, the Home Ticket lode. On the 10th inst. we commenced a new cross-cut in the 500 ft. level, directly under the Home Ticket cross-cut, in future to be known as No. 2 Home Ticket, the other to be known as No. 1. The ground in No. 2 has so far been very soft, and have already advanced 20 ft., the object being to get the ore body in the 500 ft. level. The up-

rise from the 400 ft. level has been stopped for the present, as also the intermediate. In the old stopes in the 350 ft. level, solid ore has drifted through the old openings and 20 ft. in new ground, and have cut a vein of good ore about 2 ft. wide, which looks very promising, as it is going into virgin ground, and have strong hopes of striking the continuation of the old ore body of the Dunderberg.—Home Ticket: Only two men at work, and will remove these in a day or two, in order to push the work on the ore body in the 400 ft. level as fast as possible.

April 1 (Telegram): The ore discoveries remain the same, the outlook for the next few months is promising. We have sold 200 tons for cash. We can pay all expenses on the 10th of this month without remittance from you.

FRONTINO AND BOLIVIA (Gold).—The directors have received the usual advice from the mines, all of which are stated to be going on satisfactorily. As regards the revolution, two telegrams were received in Paris by a correspondent on March 22, one stating that the revolution in Antioquia had terminated, and the other announcing peace in Antioquia. During the month of January 1267 tons of ore were treated, which produced 1616 ozs. of gold (average 1 oz. 5 dwts.); gold bought, 254 ozs. = 1870 tons, value 4315l. Cost at the mines at Medellin and in London, 2538l. 6s.; gold bought, 522l. = 3060l. 6s.; profit, 1254l. 14s. In addition to the above cost of 2538l. 6s., the sum of 4224l. has been spent on capital account.

BLUE TENT.—Thomas Price, March 10: I have simply to state at this writing again that we have no water either in our ditch, or in that of the South Yuba. The frost, however, has broken up, and the weather is getting warm. The moment there is water at the head it will be turned into our ditch. Mr. Powers writes me that the ditch is in good condition, excepting that it is filled with snow at many points. He estimates that it will take 12 days after there is water in the river to bring it to the Tent. I am in hopes that in a few days we will be able to have water.

COLOMBIAN HYDRAULIC.—W. S. Welton, Feb. 19: Malpasso: At this mine the water was turned on the 21st ultimo, but continued heavy rain caused some breakage to the ditch on the 23rd ultimo, which took 3½ hours to repair, and on the night of the 31st ultimo a large piece of the high banks fell, carrying away the bulkhead and a portion of the tube. In consequence of this damage the whole of the tube has had to be moved, and a new bulkhead made higher up the ditch, and until to-morrow we shall not be able to turn the water on: 144½ hours only have been run since the 19th ultimo. I have now been able to purchase an iron pump, with 40 ft. of iron tube, and the sinking of the shaft shall be at once resumed.—Malabar: Run the No. 33 from Jan. 16 to Feb. 17, during which washing was carried on for 512 hours; produced 118474, which, with \$42476 obtained from the old workings, brings the total remittance up to \$160950. The bank appears to be improving, and we are reaching a flat without pipelay. I believe that a profit of \$800 to \$1000 per month can be made at Malabar by running on the low banks to the east of the deposit, and by next mail I will send the board plans and a full report upon the Malabar deposit in order that they may judge of the probability of making this mine leave a fair profit.—General Remarks: But for the unfortunate damage to the bulkhead the returns from Malpasso would have been at least \$1600, so that a profit of about 3000l. would have been made upon the running cost of the two mines. There is every appearance of our having reached the good run of gravel at Malpasso, and as the cost will not increase except to be able to make fair profits in future.

CONNOLLY.—John Potter, March 8: The entire time since my last letter of the 1st inst. has been taken up in hoisting, selecting, and shipping ore broken during the month of February. Up to the present 110 tons 250 lbs. gross have been sampled. The balance now being shipped will be sampled during the present week. The first lot has turned out satisfactory, most of which was taken from the new incline which we are pushing down from the end of the tunnel level. The position of this incline remains as per my last letter. We commenced work to-day, and purpose putting on an additional force of men to follow down the deposit to a depth that will warrant our opening up an intermediate point 50 ft. below the tunnel level. As depth is attained the grade of the ore improves, and also has every appearance of developing itself into a larger and permanent body. The following are the results of the assays settled upon of the samplings from the new incline:—\$79.55; 885.06; \$121.86.

PLACERVILLE.—T. Price, March 12: I have delayed writing you for the reason that I have been continually expecting water from day to day; at last we have all under way, and all is working in the most satisfactory manner, although so far we have not been able to obtain water from the ditch that gives the best pressure. But I expect a telegram any moment that the water is through the main ditch. Since we started up at times the water was not sufficient to run both hoisting works and mill. I leave for Placerville this afternoon, and I shall remain there several days. The superintendent's fortnightly report has not been sent you, for the reason that we had nothing to say further than what was contained in my letter to you and the Chairman; hereafter I will have the regular form of the weekly report of the superintendent sent you each week, which will keep you fully posted on all points. From this time on everything will go on like clockwork, and there will be no delay. Water will be abundant at all times, as the El Dorado Company have the best ditch and water right in the State, and their supply is perennial; but the ore months of December, January, and February have been unprecedented. I have been connected with this ditch for several years, as well as with the operations of the previous company, who were the predecessors of the El Dorado Company, and I have never witnessed such a long spell of continuous hard frost—in December and January we had about ten days. In our first crushing you will please bear in mind that I am crushing all the ore taken out in the driving of the 5th level and sinking of the winze from the 4th to the 5th level, as well as the quartz extracted in the operation of opening up the 2nd level; besides which, with a new mill, the new copper plates absorb a good deal of gold, and to get all into good condition I have crushed over 100 tons of waste quartz, as is the usual custom. This, our first crushing, I do not expect to be very good, and will, probably, be lower than anything we have ever crushed on the average.

TOLIMA.—The directors have received advices from the mines on Monday. The Frias January returns show a profit of 833l. 10s. The underground agent reports 427 ft. 5 in. of ground expended, of which 55 ft. 1 in. were unproductive, leaving 372 ft. 4 in. of productive ground. The smaller returns of this month are accounted for by the superintendent by a slight falling off in the quality of the mineral raised from the 50 fathom stations, and by the south vein mineral which is usually of a greenish grey having been back pending its being run-tracted to better advantage by the hoisting of the 40 rise in the 50 winze for ventilation, and other purposes in this section. The superintendent adds that the south vein shows an improvement in the 40 west, where good ore for future stoping is being laid open, and is now in reserve.

The general superintendent, referring to the substitution of pyrites and blende for lead in the lode below the 50 in the sole of the engine-shaft, believes that it may be in a great measure accounted for by the rich channel of ore ground out above the 50 dipping rapidly away eastward from the shaft and beneath our existing exploration is perennial; but the old snap of the months of December, January, and February have been unprecedented. I have been connected with this ditch for several years, as well as with the operations of the previous company, who were the predecessors of the El Dorado Company, and I have never witnessed such a long spell of continuous hard frost—in December and January we had about ten days. In our first crushing you will please bear in mind that I am crushing all the ore taken out in the driving of the 5th level and sinking of the winze from the 4th to the 5th level, as well as the quartz extracted in the operation of opening up the 2nd level; besides which, with a new mill, the new copper plates absorb a good deal of gold, and to get all into good condition I have crushed over 100 tons of waste quartz, as is the usual custom. This, our first crushing, I do not expect to be very good, and will, probably, be lower than anything we have ever crushed on the average.

COPIAPO.—Thomas B. Hall, Feb. 16: I beg to inform you of the contracts set in this mine for the present month. Fletcher's shaft to sink below the 170, by three men, at \$45 per metre; the lode is 2 ft. wide, worth 3 tons of ore per fathom. The 170 to drive north by three men, at \$10 per metre; the lode is 4 ft. wide, and will yield about 2 tons per fathom. A winze set to sink 3 metres behind this end to six men, at \$20 per metre; the lode is 6 ft. wide, worth 10 tons of ore per fathom for the length of winze, which is 9 ft. The 170 to drive south by two men, at about \$20 per metre; the lode is 2 ft. wide, and yields 3 tons of ore per fathom. The 170 to drive north of shaft, by two men, at \$15 per metre; the lode is 3 ft. wide, and yields 3 tons of ore per fathom. This level to drive south by one man, at \$10 per metre; the lode is 4 ft. wide, worth 2 tons of ore per fathom. The winze sinking below this level, north of shaft, has been communicated to the 170, which has well ventilated this part of the mine, and laid open some good stoping ground. The 150 to drive north by two men, at \$8 per metre; the lode is 2 ft. wide, and yields 1 ton of ore per fathom. The winze sinking below this level, north of shaft, by three men, at \$30 per metre; the lode is 3 ft. wide, and will yield 4 tons of ore per fathom. We shall resume the driving of the 150 south in a few days, as it is so good, and we can draw the water off from the day. The 150 to drive south of shaft, by one man, at \$10 per metre; the lode is small and poor. This level north of shaft has been suspended, and one of the men put to drive a cross-cut west of the present end to prove if we have another part of the lode standing in that direction. The 130, to drive north, by one man, at \$8 per metre, is at present very poor. Stoping is carried on by 14 men—seven in the back of the 140, north and south of shaft on a large poor lode, and seven in the back of the 170, north of shaft. We have also 10 men on tribute—two in the back of the 50, six in the back of the 80 north, and two in the back of the 50 south. The amount of the cost—last month of January is \$825.17. Our production of ore for the same month is 1652 kilogrammes, with an estimated percentage of 25%. During the month we were hindered very much with the water, which also made it very expensive; but notwithstanding these drawbacks I think our profit should be quite \$4000. When I informed Mr. Powditch of the quantity of ore raised in January and ready for sale, the English price of copper was 75l. He, however, informed me that he was still waiting for further advice from Valparaiso. Those advices are now just come to hand informing us that it has fallen to 72l. 10s.

Since my last we made a fine discovery in the 170 north, composed of the black oxide of copper, and would give quite 12 tons of ore per fathom of about 30 per cent.; it turned out, however, to be only a shoot, as it only lasted about 6 metres in length; it was so soft that we could almost shovel it out. This end, as above stated, is now worth about 2 tons of ore per fathom; we have already started a winze to go down on this shoot, the lode is continuing good, but changing from black oxide into pyrites.—Checo Copper Mine: Price's Shaft: The 90 end, driving west of Chillon, by two men, at \$8 per metre, is worth ¾ ton of ore per fathom. The lode in the slope in the back of the 80 is 1½ ft. wide, worth 1 ton of ore per fathom. Stoping in the back of the 50 by six men; the lode is producing 3 tons of ore per fathom. In the 40 end driving west of shaft, we have no change worthy of remark. Raising the back of this level by one man at \$15 per metre; the lode is worth ½ ton of ore per fathom.—Herman's Shaft: We have commenced to drive the cross-cut south by one man, at \$9 per metre. January production 450 kils., with an estimated 15 per cent. Remittance to hand by this mail 903l. 12s. 1d.

SENTEIN.—March 21: The manager reports as follows:—At the mine we have made the following progress during the week:—The end driving to the left in level No. 4 has been extended 4 ft., and its value is 2 tons of lead ore and 2 tons of blende per fathom for width of the level. The winze going down from No. 3 level has been sunk 16 ft., and is now worth 1 ton of carbonate of lead per fm.; if the ground continues as at present we shall soon make the communication between the two levels. St. Barbe level has been driven 18 ft. this week, and in all since the commencement of the drive 28 ft.; I do not see any change yet in the lode. The miners have broken about 60 tons of lead ore and blende of usual quality. I am glad to say that our miners have finished blasting out rock for the wire-rope; the buckets will now pass freely.

March 27: The manager reports as follows:—During the past week we have made good progress in our work at the mine. St. Barbe level has been extended west 15 ft., but there is yet no change in the nature of the lode. The lode in the

end, driving to the left in the level No. 4, is at present rather hard, and consequently slow for driving; the lode is extended 3 ft., and is worth 2 tons of silver lead and 1 ton of blende per fathom for the width of the level. The winze going down from No. 3 level, to communicate with the level below, has been sunk 22 ft., in a lode composed of carbonate and blue lead to the fathom for width of the winze, which is 4 ft. 6 in. As we carry the hanging, and we only require the winze the above dimension, we are ignorant of the width of the lode, but after we get down a few fathoms deeper we shall cross-cut to prove. Our miners have broken 100 tons of ore for the week, very few men having been employed outside the mine.

AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—The directors have received advices, dated Clunes, Feb. 17:—The total quantity of quartz crushed on both the companies' and tributaries' accounts for the month ending Jan. 28 was 3671 tons; total gold obtained, 1027 ozs. 3 dwts. 12 grs. Receipts, including 12187l. obtained from tributaries, 2279l.; payments, including 2927l. paid for firewood, 18377l. 6s. 2d.; profit, 442l., which added to previous balance made a total of 13537l. Amount divided between the two companies 800l.; the Port Phillip Company's proportion being 5207l. Remittance, 4507l.

VICTORIA (London).—Advices received, dated Feb. 17, giving the following results of the working of the St. Clunes Mine for the month ending Feb. 10:—Total quantity of quartz crushed 3627 tons; average yield per ton, 6 dwts. 5½ grs.; profit, 10707l.; remittance, 2207l.

ENGLISH-AUSTRALIAN (Gold).—Mark Pollard, Fryerstown, Feb. 15: The 420 ft. level we have extended 30 ft.; distance from the shaft 660 ft., ground very hard, and all the quartz cut out.—320 ft. Level: We have crushed 491 tons of quartz; result, 93 ozs. 10 dwts. retorted gold. In consequence of taking such a large body of stone there has been a lot of poor stone crushed this month. The thickness of stone from the air drive, which you will see in the plan to the western wall, runs from 5 to 10 ft. thick. The cross-cut west has been extended 53 feet, making the distance from the lode 200 ft. We have started to drive north and south on the western wall; the quartz is still rising on the wall overhead.—North End: We have connected this end with No. 1 rise, and driven north 21 ft.; the quartz much the same, about 5 ft. thick and 12 ft. wide. We have quartz standing between this and the eastern lode, which will be worked at some more convenient time. If the winding-engine was erected we should be enabled to crush about one-third more stone than at present, and make the stone which we have now more profitable. We have a signal telephone on the shaft, according to law, working well. The returns of gold for the month are 375l. 0s. 4d., in addition to about 500l. of pyrites. The expenditure for the same period is 3097l. 9s. 4d.

SCOTTISH AUSTRALIAN.—The directors have received advices from Sydney dated Feb. 17. The sales of coal from the Lambton Colliery for month of January amounted to 21,364 tons.

YORK PENINSULA.—Kurilla Mine, Feb. 17: The following are extracts from Capt. Anthony's report—Kurilla Lode: Hall's engine-shaft is now down 53 fathoms from the surface. The lode in the shaft is 4 ft. wide, with occasional stones of ore, but not sufficient to pay. During the past month I have driven on both the branches of the lode in the 55 east. The south branch diverged from the usual course southward into hard ground, and dwindled to 3 in. in width, when I left off driving. Following the north branch the winze was reached, where the lode was comparatively poor. Passing the winze an improvement took place, and the lode is now worth 2 tons of 20 per cent. ore per fathom. I may add, however, that in the 55 there are very hopeful signs of its resuming its former quality and yield. The drive or tunnel on the cross-course, in the 55, is now 27 fathoms away from the Kurilla lode, and the driving is still easy; should no change occur another month's driving will bring us to Morphet's lode. During the past month a branch of ore 4 in. wide was met with on the west side of the drive; the portion that should be found on the east side has not yet been come upon, but floating stones of ore occur in the cross-course. The stopes above the 55 was yielding a fair quantity of ore, but the ground about the slide has become so loose and dangerous that I am under the necessity of filling the vacancy with debris, and sinking a new winze from the 45 in order to take out the ore. I continue to drive east at the 45 on the south branch, there is a regular and well-defined lode of about 3 ft. wide, with small but rich leader of ore lying on the south wall. Eight men are working on tribute from the 45 to the 15 at 10s. in 1l.—Morphet's Lode: The lode in the 43, west of the engine-shaft, is 4 ft. wide, with just enough of solid ore to pay. I am just keeping this drive going by two men at 7l. per fathom to test the western virgin ground, and I am hopeful from present appearances that at a greater depth we shall have a great length of ore ground.

The stopes throughout this level are yielding regular and fair quantities of ore. The wide stopes in the east end of the 30 is again showing symptoms of falling rocks. I have put the men to sink a winze from the 20 in a line with one of the passes, so as to take away the ore.—The North Branch or New Lode: At the 43, driving from the cross-course back west, there is a solid branch of yellow ore of 24 per cent., 6 in. wide, and carrying a very regular north wall. At the 20 the lode has yielded during the past month occasional stones of black ore, and is promising to improve. At the 10 the lode is yielding 2 tons of 15 per cent. green ore per fathom, and having a very kindly appearance. Six men are stoping from the 30 to the 10, and raising fair quantities of more than average ore.

GOLD IN INDIA.—THE SOUTH INDIAN GOLD FIELDS.—The Calcutta Englishman states:—"No wonder there is a rush in England to get land in Wynaad for gold digging, when it is announced that four boxes of stone brought home by Mr. C. R. Dawson yielded an average of 2285 ozs. per ton; and, in addition to this, one of the samples showed 3947 ozs. of silver to the ton of quartz. This result, it is said, was obtained from surface stone only, selected by planters who know nothing of mining or the selection of stone, and no gold was visible in the specimens which were the subject of these assays." On the same subject the Madras Times writes:—"The SOUTH INDIAN GOLD FIELDS. A correspondent at Ootacamund writes: 'I told you in my last that a mining engineer has been sent out to relieve Mr. Severn, who proceeds immediately to England, in view to select and bring out requisite machinery and appliances for working the gold mines of Wynaad. Mr. Severn tells me he is exceedingly well pleased with his prospects in the Wynaad. He has commenced operations which will be continued during his absence by the mining engineer, Capt. Poole. Mr. Severn has had much experience in the matter, having been employed both in New Zealand and Australia for over fourteen years, and is very sanguine that the gold mines of the Wynaad will ultimately prove remunerative speculations. Mr. Severn will return to India in June next. He is in raptures in regard to the Nalgunda Valley gold reefs. A tunnel has been already cut, and the preliminary works in connection with his operations started.'"

GOOD NEWS FOR GOLD MINE SHAREHOLDERS.—We had received intelligence from Cape Coast by the steam ship Biafra, 15 days ago, of a rich lode having been struck in preliminary workings on the gold mining property of Messrs. F. and A. Swanzy and Co., near Taquah, Wassau, but without particulars. We have now (March 31) news from Axim, the seaport of Wassau, per steam ship Bengala, which says:—"Messrs. Swanzy and Co. have made another very rich strike. Their agent, who has been opening a new shaft a fortnight since, took out a piece of quartz of 35 lbs. weight, one quarter part of which was pure gold. I have seen it; it is splendid. It was sent to England by the s.s. Biafra. Yesterday I received news that they are still taking out ore of the same quality." As this is from a fully dependable authority we offer our most sincere congratulations to Messrs. F. and A. Swanzy and Co. The neighbouring properties of the Effuuta Gold Mining Company (Limited), and of the Gold Coast Mining Company (Limited), having the same strata, there is every reason to believe that similar results will be obtained by them in their workings when they get to the same depth, which is about 80 ft. There is, we are informed, already a shaft open on the Gold Coast Mining Company's property about 70 ft. deep, from which some rich ore has been taken. The piece of quartz obtained, as above stated, by Messrs. Swanzy will, we hope, be acquired for the Government Museum of Mines in Jermyn-street, which does not at present contain any good specimens of West African gold quartz.—*African Times.*

GOLD AND DIAMONDS IN SOUTH AFRICA.—Energetic efforts are evidently being made in South Africa to create an excitement in connection with gold mining and diamond seeking, although with regard to the former it seems that somewhat exaggerated statements are being made, whilst as to diamond seeking it appears that the surface diggings which gave such extraordinary results is rapidly giving place to mining for diamonds, the remunerative result of which is far more problematical. The Natal Mercury states that rumours are afloat regarding the discovery of gold in Zululand. It is quite true that a fine little nugget, weighing 1 oz., has been brought in from the northern side of the Tugela, but it is quite premature as yet to say that a gold field has been discovered. A Pretoria (Transvaal) correspondent (Feb. 21) reports that there are rumours of all kinds abroad as to large discoveries of gold being made, but these must be taken at a large discount. The fact appears to be established, however, that the old diggings at Sphing, &c., are "looking up" again, for in one week 45 ozs. of gold were taken out of the claim of Messrs. White and King, and 51 oz. in the following week. It is said that a far larger quantity has since been taken out of the same spot. There is undoubtedly payable gold in the Lydenburg district, but there is nothing as yet which will warrant people at a distance "rushing" into the same and uncertain life of gold digging. From the diamond fields the same authority learns that the mine at Dutoitspan has been sold for 6500l., the highest price yet realised. The mine at Kimberley is now worked to the depth of 291 ft. The Administrator is sinking a shaft to supply the mine with native labour. The mine at Kimberley does not probably cover more than 50 or 60 acres of superficial area, and yet that small plot is assessed at a value of 1,650,000l. The estimate is, of course, more or less conjectural, as no one can say how deep the "diamondiferous" deposit may sink. So far there is no evidence of falling finds. The fact that a claim has been sold for 6500l. is sufficient proof of that, and this, although the mine has all but touched a depth of 300 ft. Diamond digging, as far as Kimberley is concerned, is a phrase of the past, the process being in every sense of the term a mining operation. The price of living may be judged of from the fact that potatoes sell at 6l. 10s. per bag.

LEVANT.—The contract for boring by machinery 150 fathoms in the 278 fathom level north towards submarine engine-shaft has just now been entered into with a view to speedily reaching the bed of mineral extending from the 250 fathom level, which, at present, is so productive.

HOLLOWAY'S OINTMENT AND PILLS.—Though it is impossible, in this climate of changing temperature to prevent ill-health altogether, yet its form and frequency may be much mitigated by the early adoption of remedial measures. When hoarseness, cough, thick breathing, and the attending slight fever indicate irritation of the throat or chest, Holloway's ointment should be rubbed upon these parts without delay, and his pills taken in appropriate doses, to promote its curative action. No catarrhs or sore throats can resist these remedies. Printed directions envelope every package of Holloway's medicines, which are suited to all ages and conditions, and to every ordinary disease to which humanity is liable.

BRITISH MINES.

ther improve as we open on it. All other points are progressing favourably.

west towards great footwall part of Roman lode, is very wet, showing that we are near the object of our search. The stope throughout the mine are yielding ore in quantities quite up to the average of the last 12 months.

SOUTH CONDORROW.—Wm. Rich, Wm. Williams, H. Abraham, March 31: The lode in the 30 end east of King's has a kindly appearance, and looks likely to improve. The 40 end east is worth 12s. per fathom. The 50 end east is worth 15s. per fathom. The rise in the back of this level is worth 18s. per fathom. The stope or rise in the back of the 50, east of King's, is worth 18s. per fathom. We have cut a few small branches in the 50 cross-cut north, but no lode of importance yet met with. The 60 end, east of King's, is unproductive. The 70 end east is worth 15s. per fathom. The 70 end, west of Plantation shaft, yields stones of tin. We have recently intersected branches on the 70 cross-cut south containing rich tinstone; this looks very promising. The lode in the winze in the bottom of the 70 west is worth 12s. per fathom. The rise in the back of this level is worth 8s. per fathom. The 80 end east is worth 8s. per fathom. The 80 end, east of King's, is in a large kindly lode; it contains less copper than formerly, and is now worth 12s. per fathom. The 90 end east is worth 8s. per fathom.

SOUTH DARREN.—Henry James, March 31: The shaftmen are making fair progress with the work necessary before sinking. The lode in the 110 area is not quite so good this week as last, now worth 20s. per fathom. There is no change in any of the other bargains throughout the mine since my last setting report. Owing to the very dry weather, our supply of water for drawing, dressing, &c., is very short. The engine is working the dressing machinery by day, but at night all the water is shut up in the reservoirs, and very little can be done.

SOUTH DE EREBY.—Wm. Bennett, March 31: I am pleased to inform you that in cutting the plat and driving shaft we have met with a cross-branch, which has produced some nice lumps of solid lead. This lead appears to be running into the large lode, which is about 10 fms. east of the lode we are working on in the engine-shaft. The lode in the stope at No. 2 adit is worth 15 cwt. of lead per fathom.

SOUTH TOLCARNE.—W. Rich, James Knotwell, March 31: There is very little alteration to notice in the mine since our report of last week. The cross-cut is set to six men to drive south at 5s. per fathom, and the 36 to drive east on the copper lode at 55s. per fathom.

SOUTH WHEAL CREBOR.—John Goldsworthy, April 1: The sinking of the engine-shaft is being forced on with all speed, and fair progress is being made. In driving the 16 north-east, towards the north-east and west lode, a branch 6 in. wide has been intersected containing flookan, quartz, mundle, and copper ore, and has a promising appearance. There is no other change to notice since last advised.

TAMAR (Silver-Lead and Fluor-Spar).—R. Goldsworthy, April 1: Saturday last being pay and setting-day the following bargains were set:—To drive the 37 south, by four men, at 7s. 10s. per fathom; the lode is 3 ft. wide, producing good stones of silver-lead ore and 3 tons of fluor-spar per fathom. To drive the 27 south, by four men, at 7s. 10s. per fathom; this end has been driven a long distance through unmetallized ground, but now the lode appears to be getting more compact, occasionally producing stones of lead ore, and letting out water freely, which we think is a good indication. To sink the winze in the bottom of this level by six men, at 9s. per fathom; the lode is 2 ft. 6 in. wide, producing 5 cwt. of silver-lead and 3 tons of fluor-spar per fathom. Three tribute pitches by eight men. No. 1 is set at 9s. for lead and 16s. for best fluor-spar per ton; No. 2, at 3s. 6d. for silver-lead, and 14s. and 8s. per ton each for fluor-spar.

TANKERVILLE.—Arthur Waters, April 1: The lode in the 220, west of Watson's engine-shaft, is 2 ft. wide, composed of carbonate of lime and lead ore, worth 1 ton of lead per fathom. The 220 east, going forward on the hanging wall part of the lode, is worth 1½ ton per fathom. There are six stopes in the back of the said level, east and west of shaft, worth together about 7½ tons per fathom. The stope in the 206 east is worth 1½ ton per fathom. The cross-cut in the 206 west, going north towards side lodes, is passing through congenial rock, and as four lodes are before the present end we may expect to make a discovery on one or other of them. The 182 cross-cut south, towards south lode, makes fair progress. We have 13 pitches at work, the men getting good wages. No change in any other part of the mine since my report of Tuesday last.

TESDALE.—J. Slack, March 31: West Forehead Roof: There is nothing of any particular interest to note in this working since last week. It looks rather easier, and better coming back over down the level. No. 2 stope is very much poorer; some black slate has set in, and nipped the ore very much, excepting at the extreme end of the working. No. 3 does not show any change since last week. There is fair strong ore still setting higher up. Dressings are going on fairly satisfactory. The last of 9 tons was delivered to Middleton on Wednesday, the 24th.

WEST ASHETON.—Joseph Garland, March 31: The rise in the back of the 70 west was put up last month 4 fms. 2 ft.; the lode is letting down a good deal of water, is 4 ft. wide, and composed of quartz, blende, and good stones of lead ore; we expect the lode to improve as we get nearer the 60. The cross-cut in the 60 west was driven 2 fms., passing through a strong and healthy looking lode 9 ft. wide, composed of quartz, blende, and lead ore—good saving work. Before driving on the lode we shall cross-cut a little further to see if there is any more lode standing south. The stope in back of the 50 west yields 1½ ton of lead ore per fathom. The men are now stopping a piece of ground a few fathoms further east, worth 2½ tons per fathom. The 40 west was driven 3 fms. 1 ft.; the lode for the most part was 4 to 6 in. wide, but is now in the forebore 15 in. wide, containing copper pyrites and spots of lead ore. In No. 4 stope 6 fms. 2 ft. 9 in. were stopped; the lode is from 1 to 1½ ft. wide, and produces ¾ to 1 ton of lead ore per fathom. The 30 west was driven 3 fms. 7 in.; the lode is very small, and of no value, and driving is suspended for the present. In No. 1 stope, in back of the 30 west, the lode is 1½ ft. wide, and its present yield is about 5 cwt. per fathom; ground stopped, 10 fms. 2 ft. 6 in. In No. 2 stope the lode is 2½ ft. wide, and yields 10 cwt. of lead ore per fathom; ground stopped, 7 fms. 3 ft. 4 in. Gundry's rise was put up 5 fms. 3 ft.; the lode has not been cut through for some fathoms; this will now be done, and its value reported. We shall on this day week sample the usual parcel of ore. The shaftmen are clearing the pump, cutting out ground for cistern, &c., preparatory to resuming the sinking of the engine-shaft. The loading for the new winding engine and the walls of the house are completed, and we have commenced erecting the engine. This work will be pushed on as rapidly as possible.

WEST CARADON.—N. Richards, April 1: We have completed a second footway on the main lode, down 80 fms. from surface; we have also prepared a changing-house for the men, and have set a pair of men to drive the adit level west, on Gilpin's lode, which is composed of quartz, fluor-spar, and copper ore. We have also put a pair of men to open out on a branch of copper ore intersected by Gilpin's lode, and, when we commenced driving, it is now from 10 to 12 in. wide, a pretty-looking lode, with every appearance of further improvement. We have to-day forwarded you a box of ore from this lode for your inspection. You will be able to judge as to its merits for yourself.

WEST HOLWAY.—W. Edwards, April 1: We are going on well with sinking the new shaft in a splendid-looking lode, and we have had some lumps of ore weighing ½ cwt. Henry's shaft will be complete in two or three days, when tributes can be set to work to raise lead ore. The men that were sinking Henry's shaft will, when their job is complete, be put in Ram shaft. By this means we shall be able to explore the south part of the set, and I have no doubt of success here also.

WEST KITTY.—W. Vivian, April 1: I beg to hand you the following report of this mine: In the 34, east of shaft, the rise in the back of the lode is 1 ft. wide, producing a little tin, but not to value. In the 72, driving east, the lode is 4 ft. wide, worth 18s. per fathom. In the 72, driving west, the lode is 2 ft. wide, producing saving work for the stamps. In the 60, driving east of rise, the lode is 3 ft. wide, worth 8s. per fathom for tin. On the whole, the mine is opening up very satisfactorily.

WEST WHEAL PEEVOR.—W. T. White, James Pryor, March 30: We are very pleased to say that all work in the mine is progressing very favourably. The engine-shaft is now down 8½ fms. below the 35, and in another four weeks we shall be cross-cutting to the lode in the 45. The lode in the winze sinking below the 35 is looking very well, and as depth is attained so it appears to improve. This ground will pay to stope when communication is effected with the 45, which we hope to do in about three months hence. The lode in the 35 end west is without change—a promising lode. The men are doing very good labour in driving the cross-cut north; we have about 5 fms. more to cut the lode.

WEST WHEAL TOLGUS.—April 1: In the 155, west of shaft, the lode is 5 ft. wide, yielding a little saving work for the stamps. In the 135, driving west, on south part of lode, the lode is 3 ft. wide, composed of spar, white iron, and stones of copper ore, and carrying a very regular footwall. In the 125, west, on south part of lode, the lode is 2½ ft. wide, yielding stones of ore, but not sufficient to value. The 115 east, on south part of lode, is suspended. The 145 driving east, on south branch, is suspended. The 105, west of shaft, is 4 ft. wide, composed of spar and stones of rich copper ore. In the 95, west of shaft, the lode is 5 ft. wide, and still yielding 3 tons of ore per fathom. In the rise in the back of the 95, west of shaft, the lode is 6 ft. wide, yielding 5 tons of ore per fathom. In the 85, west of shaft, the lode is 3 ft. wide, composed of spar, arsenical mundle, and spots of copper ore. In the 75, cross-cut, west of shaft, driving south, the ground is favourable for driving, but we have not met with any other part of the lode. In the 65, west of shaft, the lode is 2 ft. wide, but unproductive. The 55 west, on south part of lode, is holed to the main part of the lode.

WHEAL COATES UNITED.—W. H. Martin, March 31: I am pleased to state that we have succeeded in draining the large pool of water about the 30, and the water is now forced 12 ft. below the 30. The shaftmen are engaged in cutting the hearer-holes and cistern-plat in the 30, preparatory to fixing the plunger-lift. We have finished clearing the foundation for the winding engine and the boiler-house, and we have a little more to take for the cage-stair. The engineer was here yesterday, and marked out the foundation for the building of the engine-house; the masons are now building the bob-stand for the balance-bob to the engine-shaft, and after the masonry is completed we shall go on with the building of the engine-house. The surface men are principally in the quarries raising stones for building. The general surface works are progressing satisfactorily.

WHEAL CREBOR.—John Andrews, Henry Phillips, March 30: The lode in the 120 east has rather improved during the past week, and is now worth 60s. per fathom. In the 120 west no lode has been taken down for the week. The lode in the stope in back of the 120, west of winze, is worth 70s. per fathom. There is no change in the 108 east. The new lode in the 108 east is worth 30s. per fathom. No. 1 stope, in back of the 108, on new lode, is worth 60s. per fathom. No. 2 stope, in back of the same level, is worth 25s. per fathom. All other points are the same as reported last week.

WHEAL GRENVILLE.—T. Hodge: In the underground department there is nothing new since our report of Saturday last. We are urging on the erection of the winn-engine, and we hope now to be ready to draw on Monday morning next.

WHEAL PEEVOR.—W. T. White, J. C. King, March 30: We have no change to report in either of our bargains, all of which are looking well, especially the lode in the 80 end, which is fully 6 ft. wide, and of the same value as when last reported—40s. per fathom. The lode in the 70, driving east on middle lode, is also opening up well; lode very large and productive. The same remark applies to the 49 on middle lode, which is laying open some fine stopping ground. The 5 ft. wide in bottom of engine-shaft, as far as we have seen of it, is very good; it is 5 ft. wide, and has found no wall; we consider this a most important feature. We are making all possible speed at surface in extending the dressing-floors, &c., and our returns of tin were never more than at present.

WHEAL PRUSSIA AND CARDREW UNITED.—Joseph Pryor, March 30: Setting Report: Wheal Prussia: The 50, to drive west of skip-shaft, by four men, at 6s. per fathom; lode 5 ft. wide, producing some good tinstuff, and from present appearances will, I think, shortly improve. The 40, to drive west of skip-shaft, by four men, at 6s. 5s. per fathom; lode 4 ft. wide, producing fair

PATELEY BRIDGE.—C. Williams, April 1: We have abandoned all work below the 30 fms. level, and detached the engine from the pumps, as requested by Mr. Hutchinson. We have let the 30 end east, on Lake vein, to four men for the month, at 80s. per fathom. The vein in the end is 4 ft. wide, containing spots and small branches of lead ore, and looking promising. The 20 end west is in a strong kindly looking lode, highly charged with mineral; let for the month to six men, at 80s. per fathom. The metal pitches are without change, and producing ore in fair quantities. We have from 40 to 50 tons of pig-lead on hand, and about 12 tons of leadore. Machinery working well in every department.

PENHALLS.—S. Bennetts, March 27: The lode in both the 80 east and west ends being near a gossan is somewhat unsettled, yet containing some small veins of tin. The 70 west end is worth 5s. per fathom. The 70 west is at present unproductive. The lode in the 50 west end is 3 ft. wide, of a very promising appearance, and producing saving work for tin. The 48 west is worth 6s. per fathom. The 30 west, on north lode, is worth 5s. per fathom.

PENNANT.—April 1: From the appearance of the lode in the 80 west there is an important change about to take place. The forebore is wet and porous, mixed with carbonate and spots of lead; a very fine-looking lode, and of the greatest importance to us, for if it should turn out to be a new bunch, and not the one discovered in the 60 west, it will give us an additional stratum to our bow. It will be remembered that in the 20 and 40 levels there was only sulphate of barytes; the 60 brought about a complete change by giving us carbonate, whilst from 50 to 60 yards before reaching the run of ground proved in the 60, at the 80 we found at the latter depth signs of a still more valuable change, and I expect we are in close proximity to a body of lead ore. All the bargains throughout the mine look well, and our prospects are excellent.

PEN-YR-ORSEDD.—April 1: We have been busy since last report with the erection of engine for winding purposes, and the construction of necessary buildings, making reservoirs, &c. Good progress has also been made in the engine-shaft, and it is most desirable to make all progress we can in deepening the shaft, and so be enabled in the most economical manner to work the many rich lodes which we have almost within our grasp. In the 122 cross-cut the intersection announced last week proved to be a strong east and west branch or feeder to the main lode; and we are now urging the men forward, and expect to announce important news by the date of next report. It is generally believed that the middle lode, which we are going for, will turn out of great importance and value to us. We have very little more preliminary work to do, which you will note with satisfaction.

PHENIX AND WEST PHENIX UNITED MINES.—J. Truscott, H. Harvey, J. Hoxing, April 1: Setting Report: The 224 fms. level, to drive east of Seeombe's shaft, by side of lode, by six men, at 18s. per fathom. The cross-cut to drive south at the 200, west of old sump shaft, by two men, at 8s. 10s. per fathom; the ground is more favourable for driving. To cut out lode in the 140, west of old sump shaft, by four men, at 4s. 6d. per ton; lode worth per cubic fathom 8s. To cut out lode in the 130, west of old sump shaft, by four men, at 5s. 6d. per ton; worth per cubic fathom 8s. To stop the back of this level, by nine men, at 3s. per fathom; lode carried, 14 ft. wide, worth 40s. per fathom. To cut out lode in the 120, west of old sump shaft, by four men, at 5s. per ton; worth per cubic fathom 6s. Stope in back of this level, by four men, at 4s. 6d. per ton for the part carried, 10 ft.; worth per fathom 25s. To cut out lode in the 110, west of old sump shaft, by six men, at 3s. 6d. per ton; worth per cubic fathom 12s. To stop the bottom of this level, by nine men, at 3s. 6d. per ton; lode, 15 ft. wide, worth per fathom 30s. The 100, to drive west of West's shaft, on the north part of the lode, by two men, at 2s. 10s. per fathom; lode producing a little tin, but not sufficient to value. To stop the back of this level, west of old sump shaft, by six men, at 2s. per ton; part of lode carried, 21 ft. wide, worth per cubic fathom 12s. The 80, to drive west of old sump shaft, by two men, at 10s. per fathom; lode worth 12s. per fathom. The 60, to drive west of West's shaft, by two men, at 3s. per fathom; driving by side of lode. The 50, to drive west of West's shaft, by four men, at 5s. per fathom; driving by side of lode. No. 1 stope in back of this level, by four men, at 4s. 3d. per ton; lode, 12 ft. wide, worth 15s. per fathom. No. 2 stope in back of this level, by four men, at 4s. 9d. per ton; lode, 10 ft. wide, worth 15s. per fathom. No. 1 stope in the back of the 40, to drive west of old sump shaft, by four men, at 1s. per fathom; lode worth 6s. per fathom. No. 2 stope in the back of this level, by four men, at 4s. 6d. per ton; lode worth 6s. per cubic fathom. No. 2 stope in back of ditto, by four men, at 4s. 9d. per ton; lode, 8 ft. wide, worth 20s. per fathom. The 20, to drive west of new engine-shaft, by two men, at 12s. per fathom; producing saving work for tin. To strip out lode in the 60, east of Stow's shaft, by two men, at 3s. per ton; lode worth 6s. per cubic fathom. The 50, to drive east of Stow's shaft, by two men, at 8s. per fathom; lode, 4 ft. wide, worth 6s. per fathom. No. 1 stope in back of this level, by two men, at 3s. per fathom; lode worth 12s. per fathom. No. 2 stope in back of this level, by four men, at 2s. 15s. per fathom; lode worth 12s. per fathom. No. 1 stope in the back of the 40, east of Stow's shaft, by four men, at 2s. 15s. per fathom; lode worth 7s. per fathom. Four tribute pitches were set at tributes varying from 5s. 6d. to 12s. in 1s. for tin and copper.

POLROSE.—W. Bennetts, C. Roach, March 31: The shaftmen are now in regular way of sinking below the 80. Fair progress is being made, and the shaft is going down in a good channel of ground. Yesterday we set a rise above the 80, on the Margaret lode, north of the shaft, to four men, at 4s. 10s. per fathom, on the month. This rise will be holed to the 70, when we shall have as good ventilation in the 90 as we now have in the 80; it will also prove the lode between the 80 and 70. The lode at present in the rise is about 15 in. wide, producing a little tin.

PORT NIGEL.—Joel Manley: Setting Report: The 68, to drive east, by six men, at 6s. 10s. per fathom; the lode is 4 ft. wide, composed of spar, carbonate of lime, gossan, blende, and lead ore. The lode presents a most promising appearance, and lets out large streams of water. We are expecting an improvement here daily. We have completed clearing the run in the 58 east, and driving will now be commenced by six men; the lode is 6 ft. wide, yielding about 40 cwt. of lead ore per fathom. During the last month we have put in 20 fms. of stulls, together with other timber, in the back of the 56 east. Stopping has been commenced in Nos. 1 and 2 stopes, by four men each, at 3s. 6d. per fms.; the aggregate yield of these stopes is 20 cwt. of lead ore per fathom. I am short of suitable men for the No. 3 stope, but expect to get some in a day or two. Andrew's stope, in the back of the 58 east, by two men, at 50s. per fathom; yielding 20 cwt. of lead ore per fathom. There are two men clearing the 58 west, preparatory to starting a trial shaft. The 58 cross-cut is driven north to prove the new lode, by four men, at 7s. 15s. per fathom. We have started a winze in the bottom of the 40 east, by four men, at 4s. 10s. per fathom; the lode is producing 25 cwt. of lead ore per fathom. The 30, to drive west of the 40, to enable us to get to the top of the winze, and to ventilate the 58 east. We have put down and fixed the 11½-in. plunger in the 58 west, main-rods, and other necessary work, prior to putting the pumping-engine to her full stroke. We have also cut a large top lode in the 58, and put in shoot for filling the kibble. This greatly facilitates the sending of stuff to the surface from this level. All the machinery is working well. We shall send our samples for 40 or 45 tons of lead ore in a few days.

PRINCE PATRICK.—H. B. Vercoe, March 30: The stope in the sole of the 50 north-west having reached the bottom of the flat, a stope has been commenced on it, in which the yield of lead has averaged about 15 cwt. per cubic fathom. In stripping the east side of the 50 north-west to the full width of the lode (No. 1 stope), the yield of lead has averaged for the month about 5 tons per cubic fathom. In stripping the west side of the 50 north-west to the full width of the lode (No. 2 stope), the yield of lead has averaged for the month about 4 tons per cubic fathom. In driving the 50 south from the flat on the north and south lode, we have a very promising lode, composed of carbonate of lime, clay, sand, and fine lumps of ore. The 50 cross-cut to unwater Hughes's shaft workings is being urged on with all possible speed. The ground is very hard, but fair progress is being made. I expect to have the pump set to work in a few days, from which we have raised hundreds of tons of ore some time since, and under very adverse circumstances, having had to wind all water and stuff by manual labour. This will be remedied by the present cross-cut, which will afford an outlet for the water, as well as a means of transit for the stuff direct by tramway to the main shaft. At Gerard's shaft the 15, east on the Pant lode, has much improved, and we have now a lode 2 ft. wide, well charged with ore throughout, and containing solid lumps of large size, and ribs from 1 to 3 in. in thickness. The ground is very soft and inexpensive for working, and being driven at 35s. per fathom. The 30, north of Gerard's shaft on the eastern flat continues to present the very best of indications—in fact, nothing can be finer than the lead itself—and from its appearance to-day one might expect any stroke of the pick to strike into a mass of ore. It is precisely similar in composition to the great lode in the 50 north-west. In a rise in the roof of the 30, east of Gerard's shaft, we are getting some good quality lead. While there this forenoon I saw quite 5 cwt. of very rich ore broken, and as there is a long piece of ground in this direction only partially explored, I expect to get a considerable quantity of lead from this portion of the mine. Since my last monthly report we have sold and delivered to Messrs. H. B. Vercoe & Co. 60 tons of lead ore, and we have now 30 tons of dressed ore in the lead-house ready for sale, besides a quantity of round ore, but I would recommend the board (owing to the sudden fall in the price of ore) not to offer more than 30 tons at the next sampling, which takes place on April 5, as there is every probability before long of a considerable advance in the price of lead. The erection of the pit-head and pulley stands on Gerard's shaft has been completed and the skip-road fixed, so that we are now in a position to wind with the engine, and consequently can work much cheaper. We shall now be able to extend our operations in this direction, where we have splendid chances of making great discoveries both in the flats and in the veins.

PRINCE OF WALES.—John Andrews, March 31: There is no change in the ground in the deep adit cross-cut north. The engine-house will be up and ready for the roof to-morrow or Friday.

ROMAN GRAVELS.—A. Waters, April 1: There is a wide, strong lode in the 125, south of new engine-shaft, with good stones of lead ore on either side of the cavity. I expect to see a good improvement here shortly. The 110 north is at present going forward on a narrow lode, but a change in width and productiveness may be looked for in the next 8 fathoms driving. The 110 south is worth 1½ ton per fathom. The 95 cross-cut, going south-west from the engine-shaft, day, when we shall be in the back of the 56 east. Stopping has been commenced in Nos. 1 and 2 stopes, by four men each, at 3s. 6d. per fms.; the aggregate yield of these stopes is 20 cwt. of lead ore per fathom. I am short of suitable men for the No. 3 stope, but expect to get some in a day or two. Andrew's stope, in the back of the 58 east, by two men, at 50s. per fathom; yielding 20 cwt. of lead ore per fathom. There are two men clearing the 58 west, preparatory to starting a trial shaft. The 58 cross-cut is driven north to prove the new lode, by four men, at 7s. 15s. per fathom. We have started a winze in the bottom of the 40 east, by four men, at 4s. 10s. per fathom; the lode is producing 25 cwt. of lead ore per fathom. The 30, to drive west of the 40, to enable us to get to the top of the winze, and to ventilate the 58 east. We have put down and fixed the 11½-in. plunger in the 58 west, main-rods, and other necessary work, prior to putting the pumping-engine to her full stroke. We have also cut a large top lode in the 58, and put in shoot for filling the kibble. This greatly facilitates the sending of stuff to the surface from this level. All the machinery is working well. We shall send our samples for 40 or 45 tons of lead ore in a few days.

quality tinstuff. The 30, to drive west of skip-shaft, by two men, at 6s. 10s. per fathom; lode producing some good stones of tin, but not enough to value. We have also nine pitches working on tribute at tributes varying from 9s. to 12s. in 1s.—Cardrew: We have decided to put the 70 in. engine on the old Cardrew engine-shaft, which is, as far as seen, in a firm and good condition, and is supposed to be down right to the 70 under adit. This being so, it is the most advantageous place for the erection of our engine. The shaft of our engine, situated in or about the centre of our mines, will command all the lodes in the east, more particularly Cardrew and Prussia lodes. The former underlies north, and it is supposed to cross the shaft at the 70; the latter underlies south. These should intersect each other at about this point, which is a very important feature, and was a great inducement in our selection of the shaft for our engine, as at the junction we may expect large quantities of tin, whilst at the same time we shall be within easy distance of Prussia and other lodes, which will be prosecuted by cross-cut as we drain this part of the mine. We have collared up the shaft, and have a full pair of men engaged in enlarging the same, and we have also been clearing and securing the deep adit levels, and expect to be ready for firing the pitwork as soon as the house and engine are sufficiently advanced. We have nearly completed the foundation for the engine-house, and have issued notices soliciting tenders for the building of the same, such tenders to be delivered here on or before the 9th proximo, and as soon as accepted we shall commence the erection with all possible speed.

WHEAL UNION.—W. Teague, jun.: The caunter lode will produce 74 lbs. of tin to 1 ton of stuff. The old lode is 4 ft. wide, producing stones of copper and tin.

WHEAL UNY.—Wm. Rich, M. Rogers, March 30: During the past week we have had to change a boiler at the winn-engine, as it was worn and unsafe to work. We have also put in a new condensing work, cistern, and made other necessary alterations. This engine was of faulty construction, and has caused us a great deal of trouble and expense. Although these alterations have delayed the hauling of the tinstone for a few days, yet we hope the labour expended here will prevent future hindrances. There is no material alterations in the different bargains underground since our report of last week. We are forcing on the rise in the back of the 160 east by six men; the lode in this rise is not so large as it has been. We are carrying the whole of the lode and a portion of the granite on the footwall side. We have commenced a winze in the bottom of the 150, men the rise referred to, but the water, we fear, is rather too much to sink in unless it is speedily drained by the rise below.

VAN MINES—MONTHLY REPORT.

April 1.—Having furnished you with a full report of the mine for the annual meeting, which was held here last week, and there being no particular change underground, I have only the setting list to forward you this week, with an occasional remark when required. The 120 west is set to six men, at 190s. per fathom; the lode here is strong, and shows occasionally good spots of lead. The cross-cut south in this level, 60 fathoms west of shaft, has not been set, as we hope to set it in a few days. The stripping of the lode to the full width at the present end of the 105 west is set to six men, at 60s. per fathom, worth at present 25 cwt. of lead ore per cubic fathom. The two stopes in the back of this level are set to eight men in each, at 50s. per fathom. The intermediate level, in the back of the 105 west, is set to four men, at 150s. per fathom; lode here worth 12 cwt. of lead ore per cubic fathom. The 20 west is set to four men, to drive by the side of the lode, at 60s. per fathom. The stopes in the back of the 90 are set as follows:—The 140 west, to eight men, at 42s. 6d. per fathom. The 80 west, to eight men, at 50s. per fathom. The 120 west, to eight men, at 45s. per fathom. The 40 west, to six men, at 70s. per fathom. The 20 west, to eight men, at 40s. per fathom. The 20 east, to four men, at 40s. per fathom. The 75 permanent level is set to four men, to drive west of shaft, at 85s. per fathom. The stopes in the back of the 75 are set as under:—The 100 west, to eight men, at 45s. per fathom. The 80 west, to eight men, at 47s. 6d. per fathom. The 50 west, to eight men, at 45s. per fathom. The 30 west, to eight men, at 45s. per fathom. The 20 east, to six men, at 60s. per fathom. The stopes in the back of the 60 are all worked out except the 60, which is set to eight men, at 75s. per fathom. The stope in the back of the 30 east is set to six men, at 65s. 6d. per cubic fathom. Edward's shaft will shortly be completed to the 45, and as soon as this is done we shall stopes for further deepening.—North Lode: The cross-cut north to intersect this lode is driven 11 fms. 3 ft., and is set to six men, at 9s. per fathom.—Surface: Everything at surface is progressing satisfactorily. We have commenced upon the addition to the halvan department, and shall lose no time in having it completed. Our monthly sales take place to-day, upon 200 tons of lead and 100 tons of blende.—W. H. WILLIAMS.

NEW COMBAMARTIN (Silver-lead).—This mine adjoins the ever renowned and historically productive and remunerative Old Combmartin Mine. In the reign of Edward I. 337 men were imported from Germany to work this celebrated property, and later, in the reign of Edward III., the product was such as to materially assist him in prosecuting his war with France. In the reign of Queen Elizabeth the works were carried on with great profits. A cup of silver extracted from the ores of Combmartin was presented to the Earl of Bath, and another weighing 137 ozs. to Sir Richard Martyn, Lord Mayor of London, and is still used annually on the inauguration of that functionary. Returning, however, to New Combmartin, there are six distinct mineral-bearing lodes discovered against one only worked in the old mine; this, however, forms one of the six above referred to, and was so rich as at times to yield 400t. of silver per cubic fathom, and exceptional instances existed of the ores assaying 1000 ozs. of silver per ton, or (say) at 4s. per oz., 200t. per ton, and 10t. per cwt. of ore. The ores raised so far, however, at New Combmartin average 48 ozs. per ton of ore. The rock formation is precisely the same in the two mines, and by parity of reasoning the six lodes in New Combmartin ought each and all to be as rich as the one wrought in the old mine. William Telesse, an expert of considerable repute, says he has seen the lode in the old mine worth 400t. per fathom, and as the same cross-course traverses the New Combmartin there can be no earthly reason why equally rich deposits should not be discovered, the stratum is identical. Mr. William Newton, an agent formerly in the old mine, says the lodes in New Combmartin can be worked by adit levels, no machinery required, except for dressing the ores, and that he knows of no district so certain of producing abundance of rich silver-lead ores. Mr. John Treweeke, a local authority of 30 years experience, states No. 3 lode in driving a few fathoms south-east will form a junction with No. 2 lode; this is No. 3, he observes, one of the most splendid looking lode he had ever seen in Cornwall, Devon, or Wales, 20 ft. wide, and only 10 fms. deep. No. 5 lode in his opinion makes New Combmartin a property of very great value; indeed he is certain that a great course of ore will be met with before sinking 20 fathoms. Mr. John Blamey, the chief superintendent of the North Devon Silver-Lead Mines, is equally confident of substantial returns and profits. This authority of note has paid special attention to the composition and character of the lode as seen in the cliff, and refers to one lode, which can be worked at a profit forthwith. He further dwells favourably on the many strong cross-courses, and their favourable influence on their junction with the silver-lead bearing lodes; and he doubts not of the existence of rich deposits of argentiferous ores, and of their permanent character in regard to yield and profits. Other authorities and experts have reported on the property, and they all concur in the great promise of New Combmartin, the identity of stratum with that of the old mine, the high mineralised character of the six lodes, the rich matrix and composition of the veins—namely, flookan, quartz, mundle, white iron, and carbonate of lime—all congenial to the growth and existence of large chambers of silver-lead ores, rich in quality and massive in bulk.

IMPORTANT STRIKE IN GOLD COAST MINE.—The advices from the West Coast by the last mail state that Messrs. Swanzy and Company have made an important strike in their mine at Wassau. One piece of 35 pounds of quartz, which we believe can be seen at Messrs. Swanzy's, Cannon-street, London, having been forwarded by late steamer, is said to be nearly one quarter gold.

THE WEEK

SATURDAY, MARCH 27.—The markets were very thinly attended; but the few present were mostly buyers, and the tendency was good. Dover, A., continued their upward course, and finally left off at 125½ to 126½. No stock during the present account has had such an important rise. Brighton, A., changed hands only moderately. The last price here was 145. American shares were all higher. Illinois Central advanced 83. Trunk descriptions were strong. Business was done in the Third Preference at over 33. Tin shares in active demand. The settlement commences on Tuesday.

EASTER MONDAY.—Holiday on Stock Exchange.
TUESDAY.—Business was resumed with buoyant markets. York, A., rose 2½, Sheffield, A., 1½, Great Western and Midland 1½. In Dover, A., and Brighton, A., the advance was only moderate, rather better receipts being looked for. That of Brighton was over 12,000t. and the other 5518t. More life was seen in Italian than for some time past. In the First Mortgage an improvement of 2½ was registered, from 62 to 64. Leased, 1873, also commanded higher prices. Mining shares (tin particularly) were very firm at advanced quotations.

WEDNESDAY.—A strong rally was observable in United States and Canadian railways. Atlantic and Great Western First Mortgage opened at 65, and ultimately reached 66½. Although the reaction is very welcome there are many speculative holders who were left stranded high and dry at 72. In the Second Mortgage the improvement was 1½. The buying of Grand Trunk went on with undiminished ardour, the Second Preference being again most in favour. The advance here was 2½ (to 62½), the Third closing at 35, and the First at 79. Home railways were out of favour. York, A., opened at 130½, but fell afterwards to 128. Cape Copper, Van, Rio Tinto, and Copago were in strong request.

THURSDAY.—Several home railways and the various Egyptian issues opened flat, at a fall of from ¾ to 1 per cent., the cause assigned being the Liberal victories at the various elections yesterday. Consols also gave way. The account was finally concluded to-day. Compared with the one at the middle of March some remarkable alterations are shown. Grand Trunk Second Preference were then carried over at 52, against 59 now. During the same period the first have

rapidly from 81 to 84. Water-work shares were sold at lower prices, Southwark for instance, at 196. Chapel House Colliery, 20s. to 30s. Newport, Abercrombie, 4 to 7; Tiverton Brewery, 4 to 5. Grand Trunks rose finally from 1 to 1 all round.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, APRIL 2, 1880.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, (and, L.B., Clyde.)	2 15 0	—	English, ingot, f.o.b.	91	—
Scotch, all No. 1.	2 19 0	—	bars	92	0
Bars, Welsh, f.o.b. Wales	6 15 0	7 5 0	refined	93	0
" in London	7 5 0	7 15 0	Australian	85	10
" Stafford	9 0 0	9 10 0	Banca	86	0
" In Tyne or Tees	7 10 0	8 0 0	Straits	85	10
" Swedish, London	11 15 0	12 10 0	COPPER.		
Rails, Welsh, at works	7 10 0	7 15 0	Tough cake and ingot	72	0
Sheets, Staff., in London	10 0 0	11 10 0	Best selected	73	0
Plates, ship, in London	10 0 0	11 10 0	Sheets and sheathing	77	0
Hoops, Staff.	10 0 0	—	Flat bottoms	80	0
Nail rods, Staff., in Lon.	8 10 0	9 10 0	Wallaroo	80	0
English, spring	16	0 19 0	Bura, or P.O.O.	77	0
" cast	30	0 40 0	Other brands	73	0
Swedish, keg	15	0 0	Chili bars, g.o.b.	64	5 0
" fag. ham.	16	0 0	PHOSPHOR BRONZE.		
LEAD.			Alloys L, H, III, and IV.	£123	0 0
English, pig, common	16	5 0 16 10 0	" VI and VII	139	0 0
" L.B.	16	15 0	" XI, Spl. bearing metal	116	0 0
" sheet and bar	17	5 0	BRASS.		
" pipe	17	15 0	Wire	8	d.
" red	19	5 0	Sheets	9 1/2	— 9 1/2 d.
" white	25	0 0	Yel. met. sheath. & sheets	6 1/2	— 6 1/2 d.
" patent shot	19	10 0	TIN-PLATES, &c.		
Spanish	16	2 6 16 5 0	Charcoal, 1st quality	1	10 0
NICKEL.			2nd quality	1	6 0
Metal, per cwt.	15	0 16 0	Coke, 1st quality	1	5 0
Ore, 10 per cent. per ton	20	0 25 0	2nd quality	1	3 0
QUICKSILVER.			Black	17	10 0
Flasks, 75 lbs. war. (nom)	6	15 0 7 0 0	Canada, Staff. or Gla.	12	0 0
SPELTER.			at Liverpool	30	0 0
Silesian	20	5 0 20 10 0	Black Taggers, 450 of	30	0 0
English, Swansea	21	0 0	14 x 10	30	0 0
Sheet zinc	25	0 0			

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 6s. for each X. Terms—plates 2s. per box below tin-plates of similar brands.

REMARKS.—The Easter holidays being over, the trade has now probably only to await the completion of the general elections before it again resumes its ordinary dimensions; and there are many things which tend to strengthen such a view, for already there have been signs this week of approaching activity, and it seems merely a matter of time before the animation is re-established. The inanimate appearance of our markets has not been brought about so much by the falling off in the legitimate demand, although bona fide enquiries have been less numerous; but the dullness has been occasioned chiefly by the want of a speculative demand, caused by the unsettled state of political affairs, as well as from the realisations of prompts falling due. But the principal number of the forward contracts have now been mostly arranged, and consequently the settlements still incomplete will soon have run off, after which time the markets will be placed upon a sounder basis, and possess the better chance of a permanent improvement. The reports from the country go to show that there are still many orders being received at the works, and although somewhat less than they were a month or two ago, still they are much more numerous than they were during the same time last year. All our works, mills, and forges are said to be actively engaged, and there are but few where full time is not being employed; and, therefore, the dullness really amounts to little more than a subsidence of speculative inflation, and leaves the material progress of our trades unchecked. The vast increase in the goods traffic returns of the principal railways throughout the country is a sure sign of the revival in trade, for the aggregate increase on sixteen of the chief lines for the twelve weeks ending March 20 last is reported to have been no less than 3 per cent. above what it was for the corresponding period of 1879. This augmentation is said to be the result of bona fide trade, and quite apart from the market speculations. During the week, while the markets have for the most part remained quiet, sellers in some instances have shown considerable firmness in their quotations. Nevertheless, in other cases some violent fluctuations have taken place, caused chiefly through rather unexpected circumstances.

COPPER.—On the resumption of business last Tuesday this market manifested a more gay and animated appearance than had been the case for some days previously, and by second change sellers had succeeded in raising the price of Chili bars to 66l. to 66l. 10s. cash, and 67l. 10s. to 68l. forward, which figures were maintained on the following day. This improved tone was probably the result of the light charters, which were announced too late last week to make any particular impression upon the market before the holidays, although, as we reported at the end of our last article, the market closed somewhat firmer. Yesterday, however, the market again became dull, and prices receded to 65l. 10s. cash, with only a limited business being transacted. The immediate tendency of this market appears a little undecided, for no one is operating extensively either for a rise or a fall, orders for both consumption and shipment being still limited. As buyers keep so inactive they are, in all probability, drawing on their private stocks, and it is this he case these stocks must sooner or later be exhausted. Consequently it would appear that bona fide orders are only suspended for the time being, and must be renewed hereafter with augmented quantities as it is certain that the requirements of copper are annually increasing. The statistics published on the 1st inst. are unsatisfactory in so far as they show the public stock to have increased to 63,958 tons, against 62,302 tons on March 1, and 54,981 tons on April 1, 1879. The stock of Chili produce in first and second hands in Liverpool and Swansea for the last fortnight of March slightly diminished, being on the 31st ult. 33,000 tons, against 33,109 tons on the 15th ult. The deliveries were only 1109 tons, against 1415 tons for the same time last year, and the imports for the corresponding periods were 1000 tons, against 1393 tons.

IRON.—This market remains in a rather less satisfactory condition, the warrant market keeps quiet, and the manufactured trade is also dull. The electioneering excitement has checked the progress of the home trade, and shippers finding that prices are slightly tending in their favour continue to withhold their orders for the time being in the hope of being able to place them on more advantageous terms hereafter. Speculators are very inactive, nevertheless it is thought that after the country becomes more settled the home trade will expand, and a proportionate advance will be effected in prices, and also when shippers again find that quotations are moving upwards the demand will be augmented for shipments, and speculators and investors will be eager to again make purchases in the hope

of retrieving present losses. In the various producing districts business has been checked more or less by the holidays, and on account of the elections the attendance on several of the country markets has been comparatively small. The approach of the quarterly meetings, which will be held next week, is preventing any material change in the prices of manufactures. The Middlesbrough market is reported rather quiet, and the stock in Conall and Co.'s yards is said to have been reduced by 1571 tons for the week, and 5406 tons for the month, and now amounts to only 98,150 tons. Prices are uncertain, and but few fresh orders have been booked. Second-hand parcels of No. 3 have been offering as low as 50s. to 51s., but these reduced figures form little or no temptation to induce buyers to operate. Notwithstanding the holidays, the deliveries last week were very satisfactory, and the total for the month of March is estimated at about 80,000 tons. Prices for foundry iron are rather lower, and orders are less numerous. The demand for railway material has also considerably slackened, and hematite iron is now selling at much cheaper rates. The manufactured trade is dull, and some sellers have occasionally slightly reduced their prices, ship-plates being quoted at 8l. 12s. 6d. to 8l. 15s., rails at 7l. 15s. to 8l. 10s. to 7l. 12s. 6d., and angles at 7l. 15s. per ton. The Wolverhampton market keeps unsettled, and prices continue nominally about the same as was quoted last week, and it is expected that little or no alteration will be made in quotations at the quarterly meeting next week.

The various mills are not so well employed, especially those who roll special brands, nevertheless it is reported that there are still large orders on hand for hoops and strips for American account. A moderate enquiry exists for sheets at 10l. 10s. to 11l. for galvanising sheets, 10l. for working up sheets, and 16l. for the best stamping sheets. Boiler-plates are selling at 10l. 10s., while inferior qualities are quoted as low as 10l. per ton. There is not so much briskness on the Birmingham market, but most of the leading establishments are said to be fairly active. It is stated that after the elections are over Mr. Chamberlain will be requested to arbitrate between employers and employed relative to a further application for advanced wages. As the best brands are now selling at 15s. per ton below what was realised a few weeks back masters contend that wages should be reduced rather than increased. Business at Sheffield has become more slack, and consumers finding that by detaining their orders makers appear inclined to make concessions they show no disposition to press purchases. Sellers of common qualities are much weaker in their quotations, and the demand keeps restricted. The trade in the Welsh districts has undergone no material change during the past week, quotations are maintained, and the works are going full time. The demand is not confined to America, but India and Australia are said to be participating, and masters keep their order-books well filled. On Tuesday the Glasgow warrant market opened at the same figure at which it closed last Friday—55s. 4 1/2d., and advanced to 56s. 4 1/2d., but receded to 55s. 6d., closing thereat, and remained dull at about this figure until yesterday, when 55s. was accepted, and the market closes this afternoon at that price.

SHIPMENTS—FOREIGN AND COASTWISE.					
For the week ending March 27, 1880.....					Tons 23,597
For the week ending March 29, 1879.....					9,463
Total from Christmas to date:					
1880.		1879.		1878.	
190,145		109,859		89,478	
1877.		1876.		1875.	
93,525		97,168		122,458	
Furnaces in blast at date:					
1880.		1879.		1878.	
114		90		91	
1877.		1876.		1875.	
109		119		119	
Imports of Middlesbrough Pig-Iron into Grangemouth:					
For the week ending March 27, 1880.....					Tons 1,725
For the week ending March 29, 1879.....					660
Decrease on 1879					5,109
Stock in Connal and Co.'s Glasgow Stores.—March 27, 1880, 439,634; Christmas, 1879, 415,625; Christmas, 1878, 199,417 tons.					

Stock in Conall and Co.'s Glasgow Store—March 27, 1880, 439,634; Christmas, 1879, 415,625; Christmas, 1878, 199,417 tons.

TIN.—During the week this market has been subject to some violent fluctuations, but dealings have been fairly numerous. The quotation for Australian and Straits at the close of last week was about 84l., but on Tuesday up to 88l. was paid. On Wednesday the Banca sales at Amsterdam not having realised so satisfactory a figure as was expected, prices for fine foreign receded to 85l.; but the price was quoted yesterday in the official list at 85l. 10s. to 86l. cash, and the market closes to-day at 86l. The statistical position of this metal is fairly satisfactory. The stock has been reduced to 14,174 tons, against 14,562 tons on Feb. 28. The deliveries for last month were scarcely so good, being 3181 tons, against 1773 tons in February. The shipments to England, however, were very limited; those from the Straits being nil, while from Australia there were only 450 tons.

LEAD.—Undisturbed quietude continues to characterise the course of this market, and quotations are lower than they were last week. The shipping demand is very inanimate, and especially for India and China, the latter formerly being a very large market for this metal.

SPELTER.—This metal is still dull of sale; nevertheless, sellers maintain their prices with firmness for ordinary Silesian brands at 20l. 10s. per ton, and English at 16l.

STEEL.—There is a moderate demand, and quotations make little or no alteration.

TIN-PLATES continue in limited request, and prices tend in buyers' favour.

QUICKSILVER has been dull at 7l., with second-hand sellers somewhat under the official quotation.

COPPER.—Messrs. Richardson and Co (April 1) write—The stocks of foreign copper produce remaining unsold at Swansea this day are—Chilian, 730 tons; Newfoundland, 876 tons; Spanish, 435 tons; Portuguese, 699 tons; British, 58 tons; New Quebrada, 683 tons; Dutch, 398 tons; Total, 3879 tons; regulus, 710 tons; copper, 7058 tons. These totals represent about 7500 tons of fine copper. The only private sales of furnace material reported during the past month have been three parcels of Cape ore, together about 800 tons, at 13s. 9d. per unit. The Chili charters for the past month are 2700 tons fine. For the same period for three years previous they were—1879, 3657 tons; 1878, 3899 tons; 1877, 2528 tons. The past month opened with a strong disposition on the part of holders of Chili bars to sell, hence values fell, and although at times there have been reactions, the general tenor of the whole month's business has been of a drooping character, and our closing quotations for g.o.b. fell short by about 5l. per ton as compared with a month ago. No doubt this state of business has been largely brought about by the excitement attendant upon the general election, which has caused a curtailment of business all over the country.

Immediately after the Easter holidays the dealers in the MINING SHARE MARKET were principally engaged in the settlement of the fortnightly account, and business on the whole has not been particularly active, though a sudden spurt in the tin mines on Tuesday gave for a time a little more animation to the market. Our quotations in the most part are merely nominal.

TIN.—In anticipation of a good Banca sale tin shares became suddenly in demand on Tuesday, and a good rise took place nominally in many of them. The Dutch sale, however, appears to have been somewhat disappointing, and on Wednesday the Cornish smelters lowered the standard for ore in Cornwall 3l. per ton, and tin shares became weaker all round. Carn Breas leave off 85 to 90.

Dolcoath, 57 1/2 to 60; at the meeting on Monday the dividend is expected to be 2l. per share. Tincroft, 18 1/2 to 19 1/2; East Pool, 34 to 36; Cook's Kitchen, 63 to 7; East Lovell, 1 1/2 to 2; Polrose, 24 to 25; South Conduff, 11 to 12; South Frances, 16 1/2 to 17 1/2; West Basset, 18 to 20; West Frances, 15 to 17; West Peavor, 7 1/2 to 8; Wheal Agar, 63 to 7; Wheal Basset, 33 to 44; Wheal Grenville, 83 to 94; Wheal Kitty (St. Agnes), 5 to 5 1/2. Wheal Peavor, 27 to 28; the lode in the 80 end is worth 40l. per fathom, and the mine continues to look well generally. Uny, 4 1/2 to 5; Blue Hills, 33 to 43; South Crofty, 12 to 13; South Penstruthal, 3 to 3 1/2. West Kitty, 13 to 24; the agent reports the 72 east worth 18l. per fathom. New Kitty, 13 to 14; West Phoenix, 24 to 23; Wheal Jane, 4 1/2 to 5 1/2; Wheal Jewel, 3 to 4.

COPPER MINES have been comparatively quiet. At the Cornish Ticketing, on Thursday, the standard again declined. The average price of the ore sold was 4l. 7s. 6d. per ton, or 12s. 1d. per unit for 7 1/2 per cent., whilst at the previous Ticketing at the same place (Redruth) 12s. 1d. was obtained for 6 1/2 per cent. Devon Great Consols, 12 1/2 to 12 3/4; Wheal Crebor, 4 1/2 to 4 3/4. The 120 east has improved to 60l. per fathom. The sampling is 430 tons of good quality ore. Mellancar, 5 to 5 1/2. The ore sold on Thursday, 497 tons, realised 1763l. West Tolgus, 50 to 52 1/2. The sale here, 253 tons, realised 1525l. West Seton, 23 to 25. The sale, 81 tons, brought 349l. Carnarvon, 1 to 1 1/2. The prospects at the new mine here are improving. East Crebor, 3 to 4; East Caradon, 3 1/2 to 4; Hingston Down, 3 to 4; Marke Valley, 13 to 2; Morfa Du, 22s. 6d. to 25s.; North Penstruthal, 1 1/2 to 1 1/2; Prince of Wales, 15s. to 20s.; South Caradon, 130 to 140; West Devon Consols, 2 to 2 1/2; Parys Corporation, 25s. to 27s. 6d. The mine, the agent writes, is gradually improving. Mona, 13 to 15; West Caradon, 24 to 23.

LEAD continues to droop, and owing to the dullness of the metal shares in lead mines are rather neglected; but when business gets settled down after the elections, we may probably look for a change for the better. Van are quoted 17 to 19, and mine without change. Great Laxey, 18 to 19; Aberllyn, 1 to 1 1/2; East Van, 1 1/2 to 2; Gorsedd and Merilyn, 2 to 2 1/2; Herodfoot, 4 1/2 to 4 3/4; Leadhills, 3 1/2 to 3 3/4; Caron, 1 1/2 to 2 1/2; North D'Esresby, 3 to 4; Pateley Bridge, 3 to 4; Pandore, 17s. to 19. Roman Gravel, 10 1/2 to 10 3/4; a dividend of 5s. per share has been declared. Tankerville, 4 1/2 to 5 1/2; West Assheton, 2 to 2 1/2; Pen-y-Osred, 1 1/2 to 1 3/4; West Chiverton, 1 to 1 1/2; Gwynnynydd, 5 to 5 1/2. Frongoch, 5 to 6; this mine sold on Thursday 100 tons of blende at 37. 5s. 6d. per ton. Grogwinion, 3 1/2 to 4; the

sale here (100 tons of lead ore) realised 10l. 15s. per ton. West Wye Valley, 1 to 2; the sale here (15 tons of lead ore) realised 10l. 10s. per ton.

Crosswood, 3 to 4 1/2; Hartington, 1 to 1 1/2; Mawston, 1 to 1 1/2; Red Rock, 1 1/2 to 2; Ystwith, 1 1/2 to 1 3/4. Glenroy, 1 1/2 to 1 3/4; they are breaking some rich stones of ore in the bottom of the north level. The men have begun to sink the shaft below the 108. East Roman Gravel, 15s. to 17s. 6d.; the 95 end is in a nice lode, containing good stones of lead; the 86 is worth 2 1/2 tons per fathom, and the winze below the 75 is worth 3 tons per fathom. The pitches yield good ore. South Darren, 3 1/2 to 3 3/4; the lode in the 110 east is worth 20l. per fathom. Derwent, 3 1/2 to 4; the 95, east of Jefferies' continues worth about 1 1/2 ton per fathom. The stopes are producing well. The cross-cut to north lode is progressing at the rate of full 3 fms. a week. Port Nigel, 2 1/2 to 2 3/4.

FOREIGN MINES.—Almada and Tinto, 10s. to 12s. 6d.; Blue Tent, 2 to 2 1/2; Cape Copper, 38 1/2 to 39 1/2; Canadian Copper, 2 1/2 to 2 3/4; Colorado, 2 1/2 to 3; Copiapo, 12 to 13; Don Pedro del Rey, 1 1/2 to 1 3/4; Eberhardt and Aurora, 4 to 4 1/2; Flagstaff, 2 1/2 to 2 3/4; Januilello, 4 1/2 to 4 3/4; Port Phillip, 3 to 4; Richmond, 14 to 14 1/2; St. John del Rey, 245 to 255; Santa Barbara, 2 1/2 to 2 3/4; Placerville, 2 1/2 to 2 3/4; Hultafall, 2 to 2 1/2; New Quebrada, 3 1/2 to 3 3/4; Nouveau Monde, 13 to 14; Pestarena, 4 to 5; Rossa Grande, 4 to 4 1/2; Glenrock, 1 1/2 to 2; South Indian, 1 1/2 to 2. Ruby have advanced to 7 1/2 to 7 3/4; we are informed that a private telegram has been received to-day by a large shareholder from Eureka that a rich bonanza has been cut.

The Market for Mine Shares on the Stock Exchange does not show any improvement, as compared with last week. The announcement of the heavy Government losses as the result of the first day of the contest produced a generally depressing effect, and although there was a temporary recovery when the great Conservative victory in the City was announced, it was quickly lost; the nominally high quotations now marked resulting from an almost total absence of business to necessitate a change. The few transactions which have taken place are of a purely speculative character, the moneyed investor playing no part in the matter. But there really appears to be no real cause for this feeling, for, as has been pointed out by some of the most pronounced Liberals, the continuance of the foreign policy inaugurated in compliance with the wish of the country, by the Conservatives during the past six years is as compulsory as was the continuance of the Free Trade policy by the Conservatives since 1874, whatever might have been the peculiar views of isolated individuals as to practicability of securing reciprocity or returning to protection. Whatever may be the defects, real or supposed (and they are certainly mostly imaginary) of Free Trade, we cannot now withdraw from it; and in the present state of European politics it is equally impracticable for England to isolate herself without speedily sinking among nations to the rank of Holland, Portugal, or Sweden, which even Liberals would scarcely desire. The reactionary elections ought not, therefore, to create fear; and although metals and minerals generally show a decided drooping tendency, the splendid improvement which commenced last August will not be suddenly lost to an extent which will involve a reversion to the prices of that date, whilst at present there are ample margins for profits; so that it may be hoped that as soon as the present excitement is over the decline in prices will be arrested.

Indian Glenrock, 1 1/2 to 2; the directors have issued an interesting extract from the report to the acting secretary to the Government of Madras, Revenue Department, by Mr. R. Brough Smyth, well known to the readers of the Mining Journal as Secretary for Mines in Victoria, a position which he occupied for many years. The report appeared in the Gazette of India, Feb. 21. After stating that the map of the Glenrock estate shows three outcrops of quartz and native workings of great extent, he says:—"The rocks on the summit of Chic Hadiaetta are gneissoid, and in places somewhat granitoid masses are found, containing a pretty large proportion of magnetic iron, similar to the formation lying to the east and north. The vein quartz is milk-white, with pellicled grains of quartz scattered throughout it, and iron pyrites were found in the place where the quartz was broken out. The summit of Chic Hadiaetta is honeycombed with shafts, most of them resembling those found on the Elizabeth estate—a vertical for a few feet, with a sloping adit therefrom. On the north-western and western face of the hill the pits and adits are numerous—indeed, the appearance of these old excavations is striking, and the large amount of work done leaves no room for doubt as to the value of the reef and veins. The proprietor of the Glenrock estate got very fine samples of heavy gold in the water-course which intersects this swamp. The formation of the country in this locality, except that the hills are loftier, is similar to that generally observed in this tract, and the facilities for carrying on extensive mining operations are very great. There is perhaps no part of the Wynad where there is a surer prospect of developing prosperous mines than here, and a very small expenditure of labour would suffice to ascertain accurately the extent and value of the reefs."

The Michipicoten Native Copper Company has been formed in Montreal, and is to be incorporated by special Act of (the Canadian) Parliament with a capital of \$440,000, in shares of \$10 each, for the purpose of acquiring and working a location 6400 acres in extent on the northern or Canadian shore of Lake Superior, which is to be acquired for \$220,000 in fully-paid shares not entitled to dividends until the remaining (working capital) shares have been reimbursed their whole expenditure out of the profits. The enormous quantity of metal which has been obtained from the native copper mines on the Keweenaw Point on the United States side of the Lake is well-known, and the geological formation on the Michipicoten Island appears to be identical. This view is expressed by Dr. Sterry Hunt, F.R.S., and by Dr. Dawson, F.R.S., the principal of McGill's University, the former stating that in its present state the mine, with a comparatively small outlay may be made to yield large quantities of copper, and by judicious management become a source of great profit. A fair proportion of the subscriptions have been obtained in Canada and the States, and arrangements have been made for the necessary mining plant, such as air-compressors, rock-drills, &c., costing about 3000l., the manufacturers taking half the cost in fully paid working shares, but more capital is required for current disbursement. They are now in negotiation for a 70 head stamps mill, to be ready by June 1, 1881. The promoters anticipate a profit of 100 per cent. per annum, even if the rock yield by 1 per cent. of copper (the mines on Keweenaw point average 1 1/2 per cent.), and it is pointed out that all produce above 1 per cent. will be net profit. The prospectus will be published after the return mail, or in about a month.

Richmond, 13 1/2 to 14 1/2; the usual telegram from the mine at Eureka Nevada states that the week's run was \$75,000 from 1190 tons of ore. During the week the refinery produced doré bars to the value of \$55,000. The manager (March 10) reports that operations both in mine and smelting works have been carried on with usual regularity. There is no change to mention in any of the chambers, they are all looking well and turning out the usual quantity of ore. The furnaces are in good working order, and smelting their average quantity.

Consolidated Mine, 3 to 4. The directors have decided to order Capt. Drake to commence driving at once on the recent strike in the tunnel. Should the expectations be realised of a large and rich body of ore the result would be highly satisfactory to the shareholders in this and the Eberhardt Company.

Colorado United 2 1/2 to 3; these shares remain steady pending the receipts of the accounts from the mines of the last five months' workings. These are expected to show an encouraging financial position, and it is stated that the delay in the receipt of same is due to the illness of Mr. Hamills, accountant.

Nouveau Monde (Gold), 1 11-16ths to 1 13-16ths; news may fairly be looked for, a correspondent writes, of the arrival of Mr. Oxland at the mines about the 15th inst.

Ruby and Dunderberg, 7 1/2 to 7 3/4; a telegram from the mines and the report appear in another column. It is stated that further remittances from this side are not required. This fact is one which, writes a correspondent, can hardly be realised from our experience of mining in Europe. Capt. Rickard, of the Richmond, in his report on these mines, dated last year, prior to the commencement of the workings of the present company, recommended a cross-cut from the 400 ft. level in the Dunderberg to intersect the Home Ticket lode, and expressed a strong opinion that such would lead to important discoveries and profitable results. The works have been carried out under his directions, and his anticipations have been verified to the letter, inasmuch as in this cross-cut the present great development has taken place. A second cross-cut at the 500, to come under the present discovery is now being driven, and will reach the point of intersection in a few feet further driving, and the continuation of the cross-cut in the 400 ft. level beyond the present discovery, where there is yet a channel of about 200 ft. of metal bearing rock to drive through before reaching the hanging wall of the Home Ticket, and under the perpendicular, where in the 125 ft. level a large body of ore exists.

Missouri Lead, 10 to 11; reports have been received to March 15, stating that they are still taking down the mineral in the 170 ft. level in the St. Clair Mine, and will raise the same as soon as the machinery is completed; they will then also start the pump in the St. Clair shaft, and begin to take down the ore in the other levels, which are now below water. All the work connected with the machinery and buildings for the same is going on regularly. The developments in Master shaft are being pressed forward steadily, and the indications of the lode in the drift are working exceedingly well. The Valley shaft has been cut down and sunk 1/2 ft. deeper since our last report. The lode improves rapidly, and is richly interspersed with large stones of ore. The prospects of reaching ground that will yield largely in a short time are satisfactory. The mineral they will get out of the shaft itself in sinking it will much more than pay the cost of the work, and open up at the same time a very rich portion of the lode, which they will pro-

ceed to develop as soon as the shaft is sunk. This portion of the lode will pay handsomely. On Saturday the directors received a telegram from the mines saying—"St. Clair machinery nearly set. Pump starts on Wednesday. On Thursday another telegram was received, saying, "Machinery working."

Devon Great Consols, 12½ to 13, and much firmer; there is, a correspondent writes, a strong feeling that copper will again have a great rise, which will materially add to the amount realised for the company's large monthly sales of copper ores.

West Phoenix, 2½ to 3; the operations here are progressing satisfactorily, and some important discoveries of tin and copper will be made on the Phoenix United lodes, which are now giving such good monthly profits and dividends to the shareholders.

Mid-Devon, ½ to ¾; the news from this mine is said to continue good, all the works are making fair progress, and the 80 has improved in appearance this week. The upper levels are also yielding ore of rich quality in good quantities.

In Lead Mine shares a very limited number of transactions have taken place, and quotations are altogether nominal. Mona, 13 to 15; it is reported a new discovery has been made of rich blende ores, and the copper deposit in the 55 fm. level, at Cairns', under the open-cast, continues to produce rich ore, and is opening up a fine body. The 55, at Sidney's, is also promising.

Frongoch, 5 to 6; a parcel of 100 tons of blende, at 3½ ls., was sold on Thursday, and 30 tons at 3½ ls. 6d. Another sampling will be ready in a few days. The accounts from the mine still continue satisfactory, and good discoveries are constantly taking place. Grogwinion, 3½ to 4; 100 tons of lead were sold on Monday, at 10½ ls. per ton. For the past quarter satisfactory profits have been made, and the mine has improved in value at several points. It is expected that before long the ore sales will be increased.

Caron, 1½ to 2½; no news of any importance this week; good progress still being made in sinking the shaft. Red Rock, 1½ to 2; it is reported that prospects here are better than for a long time past. New Wye Valley, 1½ to 1¾; capital progress making with the new works, and mine looking well at all points. West Wye Valley, 1 to 2; a small parcel of lead was sold last week at 10½ ls. per ton. A parcel of copper is nearly ready for sale. Ystwith, 1½ to 1¾; the latest accounts are satisfactory. Good progress is making, and the mine looking favourable for further discoveries. The lode in the new shaft looks kindly for large deposits of lead.

East Van, 1½ to 2; the manager (Capt. W. H. Williams) writes:—We have suspended the driving of the level upon the cross-course, and removed the men to costean, for the purpose of driving a cross-cut to intersect the north lode. From what I saw there yesterday we appear to be in the vicinity of it, and the agent tells me this afternoon that they have to-day found spots of lead. I shall go over there again to-morrow, and let you know the result.

[The closing quotations being given in the Share-List on the last page of the Journal it is unnecessary to repeat them here.]

At Redruth Ticketing, on Thursday, 872 tons of ore of 7½ average produce, and containing 63 tons 1 cwt. of fine copper, were sold for 3807½ 5s., being 4½ 7s. 6d per ton of ore; 12s. 1d. per unit, or 60½ 8s. per ton of fine copper in the ore, and an average standard of 98½ 8s. Subjoined are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
March 18. 1874	101	12	0	65½	43	19
April 1. 1874	872	98	8	0	4	7

Compared with the last sale the decline has been in the standard 1½, and in the price per ton of ore about 1s. 6d.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

GAS SHARES.—The principal business in these shares, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Fitch-lane, has been in Continental Union, 20; new, 12½ to 13½; 7 per cent. preference, 24½; European, 18½ to 19; ditto, new, 9 to 9½; Gas Light, A, 17½ to 17¾; C, 10 per cent., 20½; H, 7 per cent. max., 12½; 130½; 5 per cent., A, 4; four issues, 10½; Imperial Continental, 18½ to 18¾; London, 17½; Rio de Janeiro, 25½ to 26½; Peoples of Chicago, first, 37. For closing prices see list on last page of Journal.

INSURANCE SHARES have, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Fitch-lane, been dealt in as follows:—Alliance, British and Foreign, 33½ to 33¾; Marine, 85½; London, 64; Imperial Fire, 154; Imperial Life, 21½; Rock Life, 8½ ex div.; Liverpool and London Annuity, 22½; London and Provincial Law, 5½; Universal Marine, 12½; Ocean Marine, 6½. Insurance shares are firm. For closing prices see list on last page of Journal.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence; Pumping Engines (H. Davey); on Shot-Firing; Explosive Agents Applied to Industrial Purposes; Mining in Ireland—No. XII.; Ballymena and Larne Railway; Mining in Spain—Asturias (J. A. Jones); Chili Copper; Copper Mining in Arizona (W. T. Rickard); Ruby and Dunderberg Consolidated Mining Company (A. M. Malcolm); Newport Abercrombie Black Vein Steam Coal Company; Broker's Advice (Stewart and Co.); Cornish Tin Mines, and Mining (R. Tremblay); Wheat (J. C. Cornwell); Mushroom Mines—"Cautious," and East Chiverton; Great Dyffide Mining; Gwynedd-Mynydd; Mining in Cardiganshire; Devon Copper and Blende. Foreign Mining and Metallurgy. Reports from Cornwall, North and South Staffordshire, North Wales, Salop and Cardigan, Monmouth and South Wales, Tyne and Wear, Forest of Dean, and Derbyshire and Yorkshire. Short Notices of Irish Mines, Meetings of Public Companies; Green Hurth Lead, Gawton Copper, Lady Ashburton Silver, and Rio Grande do Sul Gold Mining Companies. Automatic Brake; Steam Engines. The Mineral Resources of Colorado. Registration of New Companies. The Copper and Tin Trade, &c.

BELOWDA TIN MINE.—The discovery made in the old workings, close to surface, at this mine noticed a few weeks since, is proving to be, as was anticipated, a valuable lode. A shaft is being sunk upon it, and as depth is attained the lode is becoming defined, and opening out rich in tin, bearing indications of its leading to a large and productive deposit at the junction. The deep adit level also has been cleared, and driving is being pushed on towards Webb's lode. Every point is proving most satisfactorily; the new shafts is being sunk on a lode yielding tin in paying quantities, and a great course of tin is expected to be reached at the junction with Webb's lode.

THE ULVERSTON REVOLVING SHUTTER.—Reference has several times been made in the *Mining Journal* to the improved revolving shutter manufactured by Messrs. SALMON, BARNES, and Co., of the Canal Head Engineering Works, Ulverston, the essential feature of which is the application of an ingenious revolving motion which always keeps the shutter in one line, and thus reduces wear and tear to the minimum. It is understood that the firm have recently fitted up the windows of the banking room and basement of Drummond's Bank, Charing Cross, with their curvilinear iron revolving shutters, worked by their patent balance-weight motion, which give the utmost satisfaction.

NANT-Y-MOCH MINING COMPANY (LIMITED).

Capital £10,000, in 10,000 Shares of £1 each.

Prospectuses and Shares may be obtained on application to Capt. A. FRANCIS, M.E., Goginan, Aberystwith; or from ERNEST W. S. MURRANT, Esq., 8, St. Benet-place, London, E.C.

PIT SINKING, WINDING COAL, PUMPING, &c.
PORTABLE STEAM ENGINE FOR SALE, with two 13½-inch cylinders, fitted with link-motion reversing gear, large boiler, with or without road travelling wheels, and winding and pumping gear.
Also a double 9½-in. cylinder PORTABLE ENGINE.
A 9½-in. cylinder VERTICAL ENGINE, with winding drum, complete.
An 8-in. cylinder VERTICAL HOISTING ENGINE, with winding drum complete. To be seen at—
BARROWS AND STEWART'S WORKS, BANBURY, OXON.

PIERCE S. HAMILTON, PRACTICAL GEOLOGIST, SURVEYOR, AND MINING ENGINEER AND AGENT, OFFERS HIS SERVICES in either of these capacities to those interested or desirous of investing in MINING PROPERTY in the PROVINCE OF NOVA SCOTIA or elsewhere in the DOMINION OF CANADA.

Having for years filled the administrative position of Chief Commissioner of Mines for Nova Scotia, and having both before and afterwards been himself largely engaged in Mining operations, Mr. HAMILTON has had exceptionally good opportunities of informing himself as to the variety, extent, and character of the mineral deposits of that Province, and as to the most economical and effective method of working them.

ADDRESS—PIERCE S. HAMILTON, HALIFAX, NOVA SCOTIA DOMINION OF CANADA.

TO INVESTORS.—It is very important to Investors in Mines, to proposed Mines, to have RELIABLE Information as to the character of the properties in which they intend to invest. The undersigned undertakes to give such information in relation to any mineral property situated between Tavistock and the Lint's End, on the receipt of a fee of Three Guineas for time and exp. uses. —R. SYMONS, Mining Engineer and Surveyor, 11, Paragon, Truro.

NORTH LAXEY MINING COMPANY (LIMITED).

IN LIQUIDATION.

ALL PERSONS CLAIMING to be CREDITORS of the above-named NORTH LAXEY MINING COMPANY (LIMITED) are required, on or before the 10th day of April proximo, to send in writing a notice containing their NAMES and ADDRESSES, and the particulars of their DEBTS or CLAIMS, to the Liquidators, addressed to the care of Mr. JOHN HENRY MURCHISON, 8, Austinfriars, London; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION OF ASSETS made before such notice shall be received.

GEO. BLOGG,
J. H. MURCHISON, Liquidators.
JAMES SPITTALL,)

Dated this 23rd day of March, 1880.

GOLD MINING IN NORWAY.
about forty-nine miles from CHRISTIANIA and within seven miles from railway. This Mine has been worked by a Norwegian Company, which however for the want of sufficient capital and competent managers has been compelled to cease working, although gold was found only a little way down the shaft. A gold digger from California washed gold from the waste of the mine to the value of £400. The property can be had for a very low price, and the mine is well worth the inspection of gentlemen inclined to speculate in it.

For further particulars apply to Mr. S. ENGELBREKTSEN, Proprietor of "Kampen Foundry," Christiania, Norway.

WANTED, a MINE AGENT accustomed to DRIVING LEVELS, able to SURVEY and MAKE PLANS, &c., also a MINE SMITH accustomed to general MINE WORK, TOOLS, &c., to proceed to a tropical country. None but steady competent men need apply, with (copies only of) testimonials and salary required, to "Agent," MINING JOURNAL Office, 26, Fleet-street, E.C.

IRON ORE AND PYRITES.

WANTED, to REPRESENT, a GOOD FIRM or FIRMS for the SALE of the above. GOOD FOREIGN ORES PREFERRED. First-class connections in the North, &c. Apply, in the first instance, giving particulars and analysis, to "Ore," MINING JOURNAL Office, 26, Fleet-street, E.C.

WANTED, a PRACTICAL SMELTER as RESIDENT MANAGER of the HEBBURN LEAD WORKS, near NEWCASTLE-ON-TYNE. Applications, stating experience, salary required, age, and other particulars, to be made in writing not later than the 10th of April next, addressed to BEWICK and PARTNERS (Limited), Haydon Bridge, Northumberland.

WANTED, a SECOND-HAND AIR COMPRESSOR, steam cylinder 14 to 15 in. diameter, air cylinder 14 to 15 in. diameter. Also, 300 yards 2 or 3 in. WROUGHT or CAST-IRON PIPES. State price and particulars to Mr. J. H. HARRISON, Consulting Engineer, 20, St. Werburgh-street, Chester.

MINE.—The ARGENTIFEROUS COPPER MINE at LA PRUGNE WILL BE DISPOSED OF, BY AUCTION, on the 20th of April, 1880, in the Chamber of Notaries, Paris. Price required, 50,000 frs. Apply to Mr. LEBEVRE, Notary, 34, Rue Tronchet; and at the Siège Social, 87, Rue Denours, Paris.

A CHEMICAL GENTLEMAN, large and varied experience, and a first-class scientific attainments, is desirous of connecting himself with some NITRE WORKS on WEST COAST, SOUTH AMERICA, as SUPERINTENDENT or PROFESSIONAL ADVISER. First-rate Surveyor, Accountant, and Correspondent. Speaks Spanish fluently. References. Location healthy. Address, "Iodine," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

ENDLESS CHAIN HAULAGE.

THE ADVERTISER being connected with EXTENSIVE COLLIERIES IN LANCASHIRE, where the ENDLESS CHAIN HAULAGE is much used in preference to all others, is open to DESIGN, ARRANGE, and CONTRACT for the same to other firms, either for UNDERGROUND or SURFACE WORK. Also PUMPS, SCREENS, &c., required at MINES or COLLIERIES, will be supplied on reasonable terms. Apply, in the first instance, to "D.C." care of Mr. Alfred Barnard, Advertising Agent, 49, Fleet-street, London, E.C.

SILVER-LEAD MINE.

THE OWNERS of a very promising SILVER-LEAD MINE in DERBYSHIRE, having expended upwards of £1600 in developing the same, are prepared either to DISPOSE OF IT, or to meet with capitalists to JOIN IN WORKING IT. Apply to M. J. DENNEY, Esq., Church Walk, Ulverston; or to view, Mr. RICHARD DUNN, Flaggy, near Buxton.

CAPITAL (about £3000) REQUIRED for DEVELOPMENT of a FIRST-RATE MINE IN WALES, partially opened out. Has yielded a considerable quantity of good ore at a shallow level. Is provided with nearly all the machinery required, and registered as a Limited Company. Prospects and position excellent. Will suit either a Broker or private investor. Apply by letter, addressed "Bonus," care of Messrs. G. Street and Co., 30, Cornhill, E.C.

OFFERS addressed to Mr. J. GRIFFITHS, 217, CORNWALL ROAD, NOTTING HILL, will be received for the PURCHASE of ONE £100 TEN PER CENT. DEBENTURE BOND, due 1st July, 1880, with coupons attached for £30, in the FLAGSTAFF SILVER MINING COMPANY OF UTAH (LIMITED).

THE PROPRIETORS of the WESTERN EXCHANGE, 14, OLD TOWN STREET, PLYMOUTH, being of opinion that Tin and Copper will very materially rise in value before many days, are prepared to give the NAMES of a FEW SELECTED MINES for profitable investments. Communications to be addressed to the Secretary.

CAPTAIN ABSALOM FRANCIS, M.E., GOGINAN, ABERYSTWITH.

CWM PRYF.—For present prospects, see report this week in *Mining Journal*. Shares will go to £5 before the end of 1880. A large tract of ground has been added to the present grant, making it one of the most extensive grants in the county of Cardigan. For the few remaining shares unissued out of the 20,000, applications may be made to the above before the 31st inst., from whom all particulars may be ascertained.—Goginan, 2nd April, 1880.

MESSRS. TONKIN BROTHERS', MINING AGENTS, SURVEYORS, AND ASSAYERS, STANHOPE, DURHAM.

MINES INSPECTED AND REPORTED ON.
MESSRS. ECKINS AND CO., STOCK AND SHARE DEALERS, 14, QUEEN VICTORIA STREET, LONDON, E.C. BANKERS: ROYAL EXCHANGE. SPECIAL DEALINGS for cash, exchange, or account.

TO CAPITALISTS AND INVESTORS.
LADY ASHBURTON SILVER MINING COMPANY (LIMITED), at par £1 per share.
NAVA DE JADRAQUE GOLD AND SILVER MINING COMPANY (LIMITED), at par, £1 per share.
ONLWYN AND DULAIS COLLIERIES (LIMITED), at £5 5s. per share.
SOUTH WHEAL CREBOR (LIMITED), at £2 per share.
For particulars on the above properties, apply to—
JOHN BANTING ROGERS,
ST. CLEMENTS' HOUSE, LOMBARD STREET, LONDON, E.C.
Monthly Investment Circulars post free on application.

CAPTAIN JOHN WEBSTER (who has been managing the Aznalcollar Copper Mines of the Seville Sulphur and Copper Company, Limited, for the last six years with considerable success) will be giving up his present engagement on 30th April proximo, and is prepared to ACCEPT A SIMILAR POSITION at HOME or ABROAD, or to REPORT UPON MINING PROPERTIES. Has a thorough knowledge of the Spanish language, Dialling, Management of Men, &c. Age 34. Address, Minas de Aznalcollar, Provincia de Sevilla, Spain.

CORNISH MINING.
MR. CHAS. BAWDEN, MINING ENGINEER, ST. DAY, SCORRIER, CORNWALL.

Has pleasure in reminding his clients and friends that the EIGHT MINES specially recommended in the beginning of last August ROSE IN MARKET VALUE 375 PER CENT. within that short period, besides the dividends declared in the meantime.

A reaction from the recent lull has again set in, and I predict a similar rise in half a dozen others within the ensuing six months,—two in particular will have the greatest rise of any in Cornwall. Clients and friends are recommended to embrace the earliest opportunity.

NOTICE.
THE DEVON COPPER AND BLENDE MINING COMPANY (LIMITED). OFFICE: HIGHER MARKET STREET, TAVISTOCK.

In consequence of late applications, I beg to state that this company, as already advertised, will ISSUE NO FURTHER SHARES for less than ONE SHILLING AND THREEPENCE.

W. BAWDEN SKEWIS, Secretary.
Dated the 31st day of March, 1880.

CAPPER PASS AND SON, BRISTOL,

ARE BUYERS OF

LEAD ASHES SULPHATE OF LEAD, LEAD SLAGS, ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c. and DROSS or ORES containing COPPER, LEAD, AND ANTIMONY.

HENRY NUTT AND CO., 57, BRISTOL ROAD, BIRMINGHAM,

PURCHASERS OF

LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, TIN ASHES, TERNE ASHES, AND ALL REFUSE CONTAINING TIN AND LEAD.

GEO. G. BLACKWELL, 26 CHAPEL STREET, LIVERPOOL,

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MANGANESE, ARSENIC, FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE and SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, COHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS, TALC, PHOSPHATE OF LIME, &c.

HENRY WIGGIN AND CO. (LATE EVANS AND ASKIN),

NICKEL AND COBALT REFINERS, BIRMINGHAM

JACKSON AND BUTTERFIELD, ANALYSTS AND ASSAYERS,

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.

106, QUEEN VICTORIA STREET, LONDON, E.C.

AUSTRALIAN TIN—PRIZE MEDAL, 1877.

THE UNDERSIGNED IS PREPARED TO EXECUTE ORDERS for the "KANGAROO" and other GOOD BRANDS.

S. L. BENSUSAN
Kangaroo Tin Works, Sydney, 21st May, 1879.

C. H. WALKER AND CO., MINING AGENTS AND ENGINEER

VALPARAISO AND SANTIAGO, CHILE.

CAPTAIN W. TREGAY, M.E., REDRUTH,

ADVISES ON and INSPECTS ALL KINDS of METALLIC MINES.

FOR SALE:—

50 Bettws-y-Coed, 19s	5 Richmond, £14.	25 Polrose, £2 7s. 6d.
50 East Crebor, 17s.	20 Glenroy, £1 5s.	10 Wheal Kitty, £4 5s.
20 East Van £2.	50 Cwm Pryf, £1.	20 West Caradon, £2 7s. 6d.
5 Van, £18.	50 W. Devon Cons., £2½	25 East Caradon, £3½.

SPECIAL BUSINESS in Bwch United, Parya Corporation, and Tyn-y-Fron. Address, H. WILKINS, 3, Heybourne Villas, Tottenham.

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Messrs. ENDEAN and Co. strongly advise the purchase of well selected Lead Mines at present low prices.—Van, Great Laxey, Roman Gravel, Llanrwst, and Tamar, also South Wheal Crebor (Copper). The next great rise will be in Lead Shares, and many of those now offering will be eagerly sought after at considerably higher prices immediately there is a run upon them.

Messrs. ENDEAN and Co. are prepared to deal in all the shares they recommend at close prices.

Messrs. ENDEAN and Co. strongly advise the purchase of CARN CAMBORNE shares. This mine lies between Dolcoath and South Cornduw; the former is selling for over £300,000, and the latter for nearly £20,000. Carn Camborne is in 6000 shares, now to be had for £2 5s. each. Vigorous operations will be at once commenced, and there is every reason to believe that Carn Camborne will prove in depth as rich as any of the great mines by which it is surrounded. Shares, now £2 5s. each, are CERTAIN to have a considerable rise in price. Good sales of tin and copper will be commenced within one month after the mine is in full work.

MR. W. B. COBB, STOCK AND SHARE DEALER, 29, BISHOPSGATE-STREET, LONDON, E.C. Business transacted in every description of Stocks and Shares. Fortnightly accounts opened on receipt of usual cover.

BWLCH UNITED.—This mine has greatly improved within the last few days, more especially in the 70 fm. level. The shares must have a great rise before long. BANKERS: ALLIANCE BANK (Limited).

MR. GEORGE BUDGE, STOCK AND SHARE DEALER, 9, GRACECHURCH STREET, LONDON, E.C. (Established 28 years). ALL BUSINESS TRANSACTED FREE OF ANY CHARGE FOR COMMISSION.

Notice to Investors and Speculators.

Mr. BUDGE has DEALINGS in—	50 Frontenac.	115 Postarena.
25 Almad.	50 Gawton.	30 Phoenix United.
100 Bedford United.	50 Glenroy.	65 Pen-yr-Osredd.
60 Blaen Caelan.	20 Grogwinion.	40 Polrose.
25 Blue Hills.	50 Glenrock.	30 West Caradon.
100 Cedar Creek.	20 Killireth.	80 Prince of Wales.
75 Cwm Pryf.	100 London & California.	80 South Wheal Crebor.
80 Cambrian.	40 Dwydd Gerdul.	10 South France.
40 Derwent.	45 Morfa Du.	100 South Indian.
Dolcoath.	10 Minera.	70 South-East Wynaad.
100 Eschequer.	75 New Kitty.	50 West Kitty.
25 East Caradon.	85 New Wye Valley.	100 Wheal Coates.
100 East Crebor.	10 North Herodsfoot.	100 Ystwith.
50 English Australian.		

SPECIAL BUSINESS in Frongoch Shares as Buyer or Seller.

MESSRS. STUART AND CO., STOCK AND SHARE DEALERS, 143, CANNON STREET, LONDON, E.C. SPECIAL NOTICE.—Investors are constantly misled by being recommended to buy shares which afterwards prove unsalable. Messrs. STUART and Co., however, engage themselves to find a market should any client be desirous of re-selling within twelve months from the date of purchase.

We can with confidence recommend the following SHARES:—Parys, Glasgow Caradon, Prince of Wales, and South Prince of Wales. A copy of our "Investor's Exchange and Mart" will be sent, post free, on application.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF T. CADMAN, Esq.,
H.M. INSPECTOR OF MINES.

PERSONS desirous of being EXAMINED in this District for MANAGERS' CERTIFICATES OF COMPETENCY, under the above named Act, should at once COMMUNICATE with the Secretary to the Board of the above-mentioned District at the following address:—Winnalls Hill, Coleford.

By order of the Board,

J. T. THOMAS, Secretary.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

Notices to Correspondents.

*. Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

NEW FOWEY CONSOLS.—Some time ago I observed in the Journal a report that an important discovery had been made at New Fowey Consols (formerly Wheal Tregos) Tin Mine, Cornwall. Will any of your correspondents be good enough to give some information regarding the mine? I have failed to obtain any from Mr. Thomas Crapp, St. Columb, who is or was secretary.—S.

MICA.—Will any of your readers inform me as to the uses of mica, prices, &c.? Is there a ready demand for it? Who are the buyers?—J. H. B.—[We have an article in type on this subject; it will appear in this or next week's Journal.]

ROYAL SCHOOL OF MINES.—"Enquirer" (Sheffield).—The information asked for is given each year in the official return. In the session 1875-76 the total number of students in the Royal School of Mines pursuing the full course of study leading to the Associateship was 38, of whom 4 were exhibitors. During the session 1877-78 the number was 36, of whom 5 were exhibitors. As to the special students for mining and metallurgy, there were for mining 9 in each of the sessions mentioned. For metallurgy there were 5 in the session 1875-76, and 14 in that of 1877-78. The total cost of the school to the nation is also given annually in official returns.

GOLD MINING IN GUINAM.—"H. J. C." (Manchester).—The company is an ordinary English limited liability company, although the property is situated in a Dutch colony. The purchase money was clearly stated in the prospectus, published in the *Mining Journal* of March 20—£25,000, of which £10,000 is payable in cash, and the remainder in fully paid shares—and shows that there will be £25,000 working capital. It is estimated that this amount will earn 45,000z. per annum, or 16 per cent. on the total capital. It is suggested in Paris that if properties in Guiana can be so advantageously sold, the mineral resources of French Guiana ought to be turned to account.

ORDINARY AND BONUS SHARES.—"W. M." (Middlesbrough).—As to whether you ought or ought not to be required to pay for stamps and fees on bonus shares, no opinion could be given without consulting the company's Articles of Association, which "W. M." had better submit to his solicitor before either parting with his money or accepting the shares. As a rule, bonus shares are altogether delusive, being created only to attract the capitalist who foolishly supposes that if he receives an ordinary share and a bonus share (the capital of the company being, for example, in 10,000 shares, of which 5,000 are bonus shares) for 4s. he has some greater advantage than if he had one ordinary share, all the bonus shares being extinguished. Bonus shares should always be regarded with suspicion, but if they are purchased and not received on allotment, stamp duty, &c., would be payable as on any other share.

Resigned.—"M. C." (Yarmouth). We may be able to ascertain the address—
"P. W. H." (Dunfermline): No.—"J. A. J." (Glasgow): "W. Y."—"Investigator" (North Laxey, and North Laxey): "Looker-On" (Devon Great Consols, and Gwenn-y-Mynydd): "Shareholder" (North Laxey): "Dead Weight"—"Shareholder" (East Chiverton): "Shareholder" (Wheal Crebor): "Shareholder" (Alltani Colliery): "D. C. D."—"H. W."—"E. R. W."—"Phoenix" (Cornwall Great Consols): "P." (West Devon Great Consols, and Devon Copper and Blende): "A. D."—"Shareholder" (Wheal Crebor): "Old Reader" (Richmond): "A Thoughtful Man," on the Future Prospects of Mining, should publish his views in a pamphlet form.—W. B. Palmer (Chontales).

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, APRIL 3, 1880.

MINING TIMBER, AND TIMBERING IN MINES.

Seeing that in the present state of trade the greatest economy in the working of mines has become essential, too much attention cannot be paid to the timber used in mining operations and the best mode of placing it. Yet experiments for the purpose of showing the relative durability of different kinds of wood are almost unknown, although the value of such information can scarcely be overestimated. The subject appears to have been overlooked by our mining engineers, but it is to be hoped that more attention will now be paid to it. There should, however, not only be economy in the use of wood, but great care in its selection. As to the wood best adapted for mining purposes much, of course, depends upon the nature of the mineral worked and the strata that have to be supported, and few persons unconnected with mines are aware of the cost of the timber required. The heaviest cost is in connection with coal mines, in some of which it reaches 10d. per ton of coal raised, so that propping and other wood form a serious annual item. Under such circumstances those who have to purchase the timber should be acquainted with its properties, more especially its durability under certain circumstances. In the horse roads and engine-planes oak and larch are often used with advantage, but these should be obtained when thoroughly dry, for dry-rot is not found in wood when perfectly free from moisture, whilst water does not produce it in wood which is always wet. The rot appears to arise from the aqueous matter in timber suffering decomposition. Temperature and ventilation also affect wood in all mines more or less. Fir wood is extensively used at many mines owing to its contraction when dry and its extent of swelling or expansion when in water. In the sinking of shafts, too, it is used with advantage, as is also rough larch for the frames and cribs. In some instances both elm and Norwegian pine are adopted with advantage, but where the pressure is very great oak is undoubtedly the best. Where there is great pressure oak is by far the best wood that can be used, and in many instances, despite its greater cost, will be found the most economical. Calling the strength of a cast-iron column 1000, the strength of Dantzic oak would be 108-8, and a column of red deal 78-5. From experiments made it has also been ascertained that the strength of short columns of wet timber to resist crushing is not one-half that of columns of the same dimensions of dry timber.

Timbering in mines is a most important matter, and is capable of being carried out in a more economical manner than is usual. In sinking much timber is used at times, and frames, generally made of Scotch fir or larch, are used, being planked behind with inch deals, placed so as to nearly touch each other. The operation consists in placing two strong balks of timber upon the site of the shaft, and then the ground is dug out to a depth of 3 or 4 feet. Inch deals are set up behind the frame, the bottom ends passing down about half its thickness, so that the deals rise perpendicularly above the surface, which are kept in their place by a light frame placed within them at the top. More ground is then taken out, and another frame laid, and another set of deals put in. Another frame is placed midway between these, and a row of props between each set of frames keeps them all level, and in place. Circular cribs are frequently used, in the same manner as the frames, and these are made of timber in segments. Each segment should have a bracketed flange at the back, both at the top and bottom. Wedges made of fir are then driven into the packing, their entrance being effected by first driving in an iron wedge, so that the whole forms a firm foundation for the walling to rest upon, so that it will not give way when any part of it is undermined. For the preservation of metal tubbing wood is sometimes used as a lining. It generally consists of deals, 2 in. in thickness, bevelled to the centre of the pit by means of copper nails fastened to the tubbing, the nails being driven into the plugs contained in the each segment. In propping it has been found that much of the useful effect was lost for want of proper care or knowledge on the part of the men in placing them or in constructing the frames. The ordinary plan of timbering in main ways is by props and head pieces where it has been found unnecessary to have planks passing from one side of the passages to the other. Where permanent support is necessary there should be strong walling for supporting

the planks or cross pieces. Cast metal pipes, with strong oak planks, have been found most effectual as well as economical. Where props are placed in water-courses by the side of underground passages they frequently decay, and in such cases soles of red pine or any other wood known for its durability under water should be used, and made of sufficient thickness to raise the bottom end of the prop above the ordinary level of the water. In coal mines one of the best methods adopted for supporting the roof behind the miner whilst at work, when working by the longwall system, is that of pieces of timber from 3 to 4 ft. long built across each other by twos, and set up in double rows at convenient distances apart, the first two pieces being placed on small coal to facilitate their removal as the face advances. The strength so obtained is owing to the crushing strain being transverse to the fibres of the materials. By the use of these "chocks" greater economy of timber is effected, and the roof more securely supported than when single props only are used, and in most cases they can be recovered from the goaf, the place from which the mineral has been extracted. Where the goaf has been filled up, instead of allowing the roof to break down, a considerable saving is frequently effected in the cost for timbering, and what is known as "dead work."

Where the vein being worked is highly inclined in many cases it will be found advantageous to prepare long frames of timber at the surface before sending them into the mine, being cut the necessary lengths, and sent down in separate pieces. Those frames are fixed by wedging on each side of the ways or cross-pieces, are passed over the top from one frame to another. A good deal of the timber used in propping was to be left behind, so that cheap kinds such as alder, birch, and Scotch fir are used at many places, whilst white oak, red pine, and locust are found to be durable in underground workings. In some instances pillars of masonry are built, supporting good stout planks of oak stretching from pillar to pillar are considered the best means of support that can be devised for supporting the immediate locality of the shaft. We consider that we have shown in this comparatively brief notice the great importance to mineowners of being able to purchase timber in good condition, and also how it can be economically used. In some places so large is the amount of timber swallowed up that it has to be purchased in boatloads, so that the cost must be very heavy indeed. When it is known that at some mines as much as 350,000 tons of coal are raised annually, and if in timbering only 1d. per ton in the yield of coal can be saved, there would be so much in the pocket of the mineowners; hence the importance of the subject we have called attention to.

THE COPPER TRADE.

During the quarter ending March 31, 1880, the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 9768 tons, which contained 662 tons 2 cwt. of fine copper, and realised 40,413. 9s., being equal to an average of 47. 2s. 10d. per ton of ore, and 617. 1s. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 5717 tons, which contained 545 tons 0 cwt. of fine copper, and realised 36,196. 5s. 6d., being equal to an average of 67. 6s. 6d. per ton of ore, and 667. 8s. 3d. per ton of copper in the ore. The average produce of the ore sold at the Cornish Ticketings was 63 per cent., whilst that sold at Swansea gave an average produce of 94 per cent. From this it will be seen that the aggregate sales by ticket were 15,485 tons of ore, containing 1207 tons 2 cwt. of fine copper, and realising 76,609. 14s. 6d. The subjoined is a summary of the periodical sales at the Cornish and Swansea Ticketings respectively. The ores sold at the Cornish Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Jan. 1...	£99 16 0...	63 1/2...	£4 1 0...	11s. 1 1/2 d.	1,377	701 12c...	£ 4,194 12 6
" 22...	105 9 0...	63 1/2...	4 0 6...	12 6	2,019	129 9	8,101 5 6
Feb. 5...	98 10 0...	7 1/2...	4 18 0...	12 7 1/2	1,031	80 8	5,060 19 6
" 19...	100 8 0...	6 7/8...	4 4 0...	12 1 1/2	2,576	173 10	10,334 17 0
Mar. 4...	102 17 0...	6 1/2...	3 18 6...	12 1	1,181	76 10	4,621 6 6
" 18...	101 12 0...	6 1/2...	3 19 0...	11 11	1,924	126 18	7,600 8 0
Total for the quarter...					9,768	662 2	£40,413 9 0
Quarter ending December, 1879					10,586	715 6	£42,147 14 0
Quarter ending September, 1879					10,235	710 7	£42,774 8 0
Quarter ending June, 1879					10,675	726 16	£42,260 16 0

Total for the year	41,264	2814 11	£419,598 7 0
Showing a quarterly average of	10,316	703 18	£7,399 1 9
Corresponding quarter March, 1879	10,598	731 16	£33,029 12 0

The ores sold at the Swansea Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Jan. 6...	£85 5 0...	10 10...	£6 9 10...	13s. 0 d.	2,033	203c 5c...	£13,200 9 6
" 27...	92 16 0...	11 1/2...	7 13 10...	13 9 1/2	1,255	139 17	9,651 11 0
Feb. 74...	92 13 2...	7 1/2...	4 13 11...	13 4	1,185	85 10	5,567 12 6
Mar. 23...	92 7 9...	9 1/2...	6 5 0...	13 4 1/2	1,244	116 8	7,776 12 6
Total for the quarter					5,717	545 0	£36,196 5 6
Quarter ending December, 1879					7,501	709 8	£45,360 4 0
Quarter ending September, 1879					8,680	855 13	£44,807 11 6
Quarter ending June, 1879					4,113	521 6	£28,261 6 6
Total for the year					26,011	2631 12	£154,655 8 0
Showing a quarterly average of					6,503	657 18	£38,663 17 0
Corresponding quarter March, 1879					5,158	559 15	£28,634 8 8

OUR RAILS IN INDIA.

It must be a matter of congratulation to the iron trade that the Finance Minister for India has recently been enabled to compile and issue to the world a balance-sheet which may fairly be termed satisfactory, since it exhibits a respectable, and, indeed, a considerable surplus. There were those who predicted that the severe military struggles in which the Government of India has been engaged would have the effect of crippling its resources, and landing it in an alarming deficit. But these prophets of evil have found their predictions signally falsified. India is a land of surprises, and the population of India appear to have been doing fairly well of late, although a war has been raging on a remote Indian frontier. Holding India as we do by the sword, we are afraid an occasional trial of strength and endurance with some native potentate is inevitable; and when once the Anglo-Indian Government is committed to such a conflict it must be brought unflinchingly to a victorious termination, otherwise we should have half India up in arms against us. Even now the pacification of Afghanistan appears to be far from complete; still we have proved our strength, and our hold upon British India has probably become a little stronger. At the same time, our administration of Indian affairs is not harsh or oppressive. We have learnt to govern India with mildness, as well as with force, if necessary; and, according to all appearances, the British rule in India never rested upon a more stable basis than it now does.

We have gone into these particulars because the credit of the Anglo-Indian Government must be intimately associated with its stability. A weak and precarious government can never have a strong credit, and the reverse holds good with reference to all solid well-established administrations. That the credit of the Anglo-Indian Government has become of a high order is at once reflected in the fact that British India can now raise all the capital of which it stands in need at 4 per cent. per annum. With an expenditure balanced by its income, with an ability to raise money at 4 per cent. per annum, and with British India in a peaceful condition, upon the whole, the Anglo-Indian Government may be fairly expected to exhibit interest and vigour in the prosecution of public works, and this being the case, the construction of more State Indian railways would under ordinary circumstances be energetically proceeded with. We say "under ordinary circumstances," but we are free to admit that the circumstances now prevailing are not exactly of an ordinary character. If the rails required for the establishment of Indian State railways were obtainable at ordinary prices there would now be no impediment in the way of a vigorous railway construction policy in British India. But it is useless to attempt to ignore the fact that steel rails are at present at a price which discourages

consumption. The tendency of prices is certainly downwards, but still the Anglo-Indian authorities are likely to pause before they buy rails very freely at present rates. But when quotations have fallen to a slightly lower level we think we may fairly assume that the Government of British India, sustained as it is by several favourable and encouraging circumstances, will be a buyer of our rails upon a somewhat liberal scale. If we are correct in this opinion our rail market may be fairly well supported, whatever course may be taken by affairs in that somewhat bewildering quarter of the world—the United States of America.

THE LATE MR. JOHN LITTLE.

We have this week to record the death of Mr. JOHN LITTLE, of the Stock Exchange, in his 71st year. Mr. Little had not been well for some weeks, but being in the City on Thursday, March 25, he received the congratulations of many friends on his apparently improved health. Alas! on Sunday morning last he breathed his last, and was interred at Highgate Cemetery on Thursday. The nature of the disease which so instantly terminated his career was angina pectoris—a disease which may mean ossification of some portion of the heart or fatty degeneration. Mr. Little was born in the South of Scotland, near Langham. He left Scotland in early life for the sunny South, and settled in business in Truro, where his success was such as a straightforward, truthful, and honourable career warranted. After a few years residence in Truro he removed to Redruth, soon after which he married Mrs. Lander, sister of the celebrated African traveller, a very superior helpmate, who lives to deplore his loss. Mr. Little's residence in Redruth brought him more in contact with mining men and the mining world. He hesitated not to invest a part of his hard earned savings in such mines as South Frances, Clifford, South Tolgus, Wheal Basset, Wheal Buller, and many other mines. Large dividends flowed into his hands, and competence followed, although until very recently he never hesitated to join in the development of a good property if he could rely on the people with whom he could associate himself. At one time he is said to have been a shareholder in 50 different mines. This brought him into contact with all the merchants and wealthy people in West Cornwall. His strict integrity, his inability to make a false statement or prevaricate, and his scrupulous honesty in all his transactions won the respect of all. The richest valued his opinions and counsel; private houses and private offices were open to him whenever he wished. No confidence was ever betrayed, and none ever regretted. Had fortune given him that mental development in his early youth now so easily obtainable by all Mr. Little would have stood forward as a giant among men. Endowed with a wonderful combination of faculties, a good memory, and extraordinary comprehensiveness it is not surprising that all who knew him (rich and poor) miss him. A vacancy exists in his circle never to be filled. Mr. Little was until a few years ago a partner in the Redruth Tin Smelting Works, but soon after his removal to London sold his interest to Mr. Bain. He reserved his part in the British Arsenic Works, although he had almost retired from mining, or anything of a speculative character.

PORTABLE DAYLIGHT—LAMPS THAT DO NOT BURN.

Although it is scarcely reasonable to suppose that phosphorescence could be substituted for ordinary artificial light in working collieries, there are many instances in which light without flame would be invaluable, as, for example, in rescuing colliers after explosions, or in securing the safety of the fire triers during their examination of the workings previous to the descent of the men. The idea of using flameless lights in mines and elsewhere when danger is apprehended is by no means new, but owing to the costliness and unreliability of most of the arrangements it has proved altogether impracticable to introduce them. This objection, however, has now been overcome, the use of Balmain's luminous paint offering a cheap and enduring phosphorescent lamp, which can be carried as the ordinary Davy lamp, and at the same time renders the ignition of the fire-damp absolutely impossible, so that wherever the explorer could travel, provided, for example, with a Denayrouze or Galibert apparatus, there he could make his search without the consumption of that air which can be much more usefully employed for respiration, and with the certainty of safety from firing the gas.

The light emitted during the oxidation of phosphorus has given the name phosphorescence to all similar lights, although nearly three centuries ago it was discovered that other substances besides phosphorus possessed the same property, but whether this be due to oxidation, infinitesimally small although it be, has yet to be ascertained, for although it is difficult to suppose that the change which the light produces upon the substances which display phosphorescence is not in every case due to chemical or an equivalent action, the fact that the tube of calcium sulphide sealed by Canton in 1761 still retains its luminosity would seem to point in the other direction, unless, indeed, the constituents of the salt are so accurately balanced that although a sunbeam is sufficient to produce the change which gives rise to phosphorescence the salt quickly regains its normal condition as the power of the sunbeam ceases. A brief outline of the history of phosphorescence was admirably given by Mr. Henton, F.C.S., in a paper read at the last meeting of the Society of Arts. Obscure hints of the phosphorescent power of gems are contained in some of the works of the ancients, but nothing definite was discovered until about the year 1602, when a shoemaker of Bologna named Vincenzo Cascioli picked up a heavy stone, and being an enthusiastic alchemist, took it home and treated it in his furnace, in the hope of obtaining gold from it. Instead of getting gold, he obtained a mass which shone in the dark, and which became celebrated as the Bologna stone, or Bologna phosphorus. The stone was the now well-known heavy spar, and acted on by carbon it yielded barium sulphide, a compound of considerable phosphorescent power. In 1663, Boyle published some observations on the phosphorescence of the diamond, and, in 1675, Baudoin obtained another phosphorus by the action of heat on calcium nitrate. Some important additions to our knowledge were made by Beccaria, in 1714, and then came the discovery by Canton, in 1761, of the phosphorus or pyrophorus which bears his name. It is made by calcining oyster shells with sulphur, and consists, of course, essentially of calcium sulphide, which is the most remarkable of phosphorescent substances. In 1775 Wilson published some valuable discoveries.

Passing by, in this imperfect sketch, several important names, we come to the greatest name of all, Edmund Becquerel, who for more than 30 years has enriched science by his discoveries. It is impossible for us to give even an abstract of these discoveries. He invented an instrument called the phosphoscope, by which he was able to detect the phosphorescent power in bodies which remain luminous for very short periods of time. He showed that the power was a very common one in nature as well as in artificially prepared substances, and that it was possessed by organic as well as inorganic compounds, and particularly by all fluorescent substances. He analysed the light emitted in each case by the spectrum, and determined its duration within certain limits of accuracy. These limits are singularly wide, extending from less than the 5000th part of a second to hours or even days. Of all phosphorescent bodies the sulphides of calcium, barium, and strontium are the most remarkable in regard to the duration of their light; and Becquerel has studied the modes of preparing those compounds with the greatest care, and has revealed many strange and even startling facts with regard to them. They can be prepared by the action of carbon on the sulphates, by the action of sulphur on the oxides and carbonates, and by the action of alkaline sulphides, and even of antimony sulphide, on the last-named compounds. The phosphori prepared by these various processes differ widely in regard to the colour and duration of the light which they emit; and it is even possible to obtain shades varying from orange red and indigo blue from calcium only. But this is not all. The calcium sulphide obtained from calcite is different from that from arragonite, though these minerals have the same chemical composition; and the differences remain even after each mineral has been dissolved in acid, precipitated by sodium carbonate, and then ignited with sulphur. This affords a strange, and for the present inexplicable, example of

molecular persistency. Becquerel holds that fluorescence and phosphorescence are one and the same phenomenon, the apparent differences being due solely to the different periods during which the absorbed light is emitted.

The essential feature of the invention (due to the late Professor Balmain, of University College), which is now attracting so much attention, is the combination of some of the best of these phosphorescent substances with water or oil, so that it can be applied like ordinary paint, and thus utilised in places where in any other form it would be quite inappreciable. In some experiments shown by Mr. King in his lecture on the subject at the Polytechnic, Regent-street, some most striking and interesting effects are produced, which can leave no doubt as to the general applicability of the invention. The owners of the patent have already received several orders from the Admiralty, &c., for framed screens—to which they give the name of Aladdin's lamps—about 1½ square foot surface, and which give about one-fourth the light of an ordinary lamp, the intention being, it is understood, to use them in powder magazines and similar places. The invention is one likely to come very extensively into use as soon as it merits, which are beyond question, become more generally known.

TECHNICAL EDUCATION IN THE UNITED STATES.

YALE COLLEGE.

An important step in connection with the extension of technical education has just been taken by the "President and Fellows of Yale College, in New Haven," and might be advantageously followed by some of the leading universities of this country—it is proposed to grant, after severe and continued testing by officers appointed by the university, certificates of class for instruments of precision. In the first instance arrangements have only been made in connection with the College observatory for encouraging the utmost attainable accuracy in the construction of refined apparatus for the measurement of time, but it is understood to be the intention of the corporation to extend the principle as soon as practicable to philosophical and mathematical instruments generally, and should that also prove successful to go still further. The tests are to be made at the cost of the manufacturers seeking the certificates, but as the College authorities have no desire to derive direct pecuniary advantage from the granting of these certificates little if any more than the absolute outlay involved, and hence the cost will only amount to a few shillings—an amount which most purchasers would gladly pay for the absolute guarantee of quality which such a certificate will afford. The timekeepers to be certified will be sent in much in the same way as chronometers are now sent in to the Royal Observatory at Greenwich, but the Yale authorities will give a definite and formal certificate instead of an indirect and informal one.

The Yale certificates are to consist of eight classes, and will state in detail the various tests to which the articles have been submitted and the results of the testing. Numerous costly apparatus have been provided by the College both for ensuring completeness of the test and for avoiding the possibility of any tampering. The first-class certificate will only be obtainable after protracted trials under extremes of temperature and moisture and variety of position calculated to affect the timepiece in its action, and to facilitate these tests closets have been fitted up as a refrigerator, as a chemically dried-air chamber, as an oven heated by coils of hot water pipes, and as a chamber of ordinary temperature. That such certificates will be appreciated by the public cannot be doubted, and they will thus tend more than aught else to encourage all engaged in the branch of industry affected to strain every nerve to attain perfection. At a time like the present, when we hear but too much of the decline of quality in the material and workmanship put into the articles manufactured in this country, such a step as this should attract the most serious attention, as it is only reasonable to anticipate that such a system will have an enormous effect in determining who shall command the markets of the world.

It is particularly gratifying to find that it is by one of the oldest and most celebrated universities in the Union that this important move has been made, as it affords conclusive evidence that, notwithstanding the large number of the colleges which during the present century have sprung up in every state, and thus taken academical instruction to the very doors of those who care to profit by it, the vitality and energy of the old institutions are not impaired. Yale College is one of the few American universities which can date back long before the declaration of independence—Harvard, Columbia, Princeton, and Dartmouth being the only others—and great and praiseworthy as have been the efforts of the younger colleges they have never succeeded in surpassing the older establishments. With one exception—Harvard—Yale College is the oldest university in America, and it should not be forgotten that the Sheffield Scientific School (which forms part of the College) has already done so much for the encouragement of the study of the mathematical, physical, and natural sciences, and done it so well, that the high character of every certificate emanating from the corporation is everywhere recognised. In this school the course of instruction leading to the degree of bachelor of philosophy occupies three years. The degrees of civil and dynamic engineer are given to bachelors of philosophy after a higher course of two years, and the degree of doctor of philosophy after a three years course, whilst the entire cost of tuition and lodging is considerably under 400. per annum. The new bureau is the first step toward the recognition by the university of practical as well as scientific attainments, and it may fairly be anticipated that the result will be, although indirectly, alike beneficial to the College and to the people.

THE PETROLEUM FIELDS OF RUSSIA.—The owners of American petroleum deposits will before long have to encounter a considerable amount of opposition in view of the discoveries of this valuable oil on the Continent, and especially in Hanover and Russia. The beds in the latter country are comparatively boundless, extending for a distance of 1500 miles along the Caucasus range, from the Caspian to the Black Sea. At the present time, however, there are but two districts in this large area where any systematic efforts are being made to obtain the petroleum. One is in the valley of the Kuban river (which flows into the Black Sea), where two wells have been sunk by a French company under the superintendence of an American manager; this company has a refinery at Taman. The other and most productive district is near Baku, on the Caspian Sea. Many wells have been sunk here to the depth of 300 ft., having a daily yield of 28,000 barrels of crude petroleum. An extraordinary amount of sand flows out with the oil, and is heaped up near the orifice of the wells in banks at least 30 ft. high. Large refineries exist at Baku, though the refined oil at present produced there is not so good as the American oil.

IMPROVED ARC FOR THE HEDLEY DIAL.—An ingenious and important attachment to the Hedley dial has been applied by Messrs. John Davis and Son, the well-known mathematical instrument makers of Derby, and will doubtless be appreciated and adopted by surveyors generally. It consists of a new form of arc of such a size and so fixed that it may be read with ease, and is never in danger or in the line of vision in reading the dial, we have now the pleasure to describe. In the place of the old arc a circular box is fixed of only 1½ in. in diameter, containing a dial divided into 50 equal parts and figured both ways 10°, 20°, up to 50°, by rack and pinion motion a hand traverses over the dial one whole revolution for a dip of 50°. With this small arc, which is well protected and very compact, a scale of degrees twice as open as of the old form is obtained. The new arc can be applied to existing dials at a merely nominal cost.

ELIMINATION OF PHOSPHORUS FROM IRON &c.—Mr. JULIEN DEBY, of Brussels, provisionally protected but did not complete a patent for an invention relating to the elimination, partially or wholly, of phosphorus or its combinations or compounds from iron, other metals, and their alloys, through the action upon them while in a molten state of gases which are blown through them while held in a Bessemer converter, blast or other furnace, receiver or cupola. The gases specially referred to comprise such only as have a definite reducing action on the combinations or compounds of phosphorus in

contradistinction to such other gases as have an oxidising action similar to atmospheric air applied in blast. And the invention consists in temporarily substituting for the atmospheric blast now in use, in order to eliminate the phosphorus from the molten metals, a blast containing carbonic oxide, ammoniacal vapours, or some other reducing gas manufactured specially, or to be obtained from waste products, of a liquid or volatile nature, such as result from the treatment of ores or metals, or the manufacture of coal gas or other industries.

PROVINCIAL STOCK AND SHARE MARKETS.

CORNISH MINE SHARE MARKET.—Mr. S. J. DAVEY, mine shareholder, Truro (April 1), writes:—A large business has been done in our market during the week. Prices recovered from the fall of a few days before, but do not close at their best. The tin standards have fallen 3s. Carn Brea shares advanced 8½, Dolcoath 5½, East Pool 6½, South Frances 2½, Tincroft 3½, West Basset 30s., West Frances 30s., Wheal Pevor 4½, and Wheal Uny 20s. The following are to-day's prices:—Blue Hills, 4 to 4½; Carn Brea, 85 to 87; Cook's Kitchen, 6 to 6½; Dolcoath, 57½ to 58½; East Pool, 33½ to 34½; Mellanear, 5½ to 5¾; New Cook's Kitchen, 6 to 7; North Busy, 1 to 1½; Penhalls, 2½ to 3; Poldice, 2½ to 2¾; South Comendurrow, 11 to 12½; South Crofty, 11½ to 12½; South Frances, 13½ to 14½; West Basset, 17½ to 18½; West Frances, 16 to 16½; West Toluus, 50 to 55; Wheal Agar, 6½ to 7; Wheal Basset, 3½ to 4½; Wheal Grenville, 8½ to 9½; Wheal Jane, 4½ to 5; Wheal Kitty, 5 to 5½; Wheal Prussia, 1½ to 1½; Wheal Pevor, 27 to 28; Wheal Uny, 4½ to 5.

—Mr. JOHN CARTER, mine shareholder, Camborne (April 1), writes:—The Cornish mine share market has been a little more active during the week; prices have had a rapid rise, and more business transacted. On the announcement of the Banca sale, on March 31, and the fall of 3s. in the tin standards, prices again gave way, but are to-day steady at annexed quotations:—Blue Hills, 4 to 4½; Carn Brea, 85 to 87; Cook's Kitchen, 6 to 6½; Dolcoath, 57 to 59; East Pool, 33½ to 34½; Killifreth, 1 to 1½; Mellanear, 5½ to 5¾; North Busy, 1 to 1½; Penhalls, 2½ to 3; Poldice, 2½ to 2¾; South Comendurrow, 11 to 12½; South Crofty, 11½ to 12½; South Frances, 13½ to 14½; West Basset, 17½ to 18½; West Frances, 16 to 16½; West Toluus, 50 to 55; Wheal Agar, 6½ to 7; Wheal Basset, 3½ to 4½; Wheal Grenville, 8½ to 9½; Wheal Jane, 4½ to 5; Wheal Kitty, 5 to 5½; Wheal Prussia, 1½ to 1½; Wheal Pevor, 27 to 28; Wheal Uny, 4½ to 5.

—Mr. M. W. BAWDEN, Liskeard (April 1), writes:—The mining market, especially for tin stock, has considerably improved, and most shares have advanced in price, but to-day the market is easier, the subjoined being the closing prices:—Bedford United, 7½ to 8; Carn Brea, 85 to 87; Clitters, 4½ to 5; Cook's Kitchen, 6½ to 6¾; Dolcoath, 57 to 59; Devon Consols, 12 to 12½; East Caradon, 3½ to 4; East Pool, 32 to 33; Gawton, 1 to 1½; Glasgow Caradon, 13½ to 14½; Herodfoot, 4 to 4½; Hingston Down, 1 to 1½; Marke Valley, 1½ to 2; Phoenix, 5½ to 5¾; Prince of Wales, 1½ to 1¾; South Caradon, 12½ to 13½; South Crofty, 13½ to 14½; South Frances, 13½ to 14½; Tincroft, 12½ to 13½; West Basset, 17½ to 18½; West Frances, 16 to 16½; West Toluus, 50 to 55; Wheal Agar, 6½ to 7; Wheal Basset, 3½ to 4½; Wheal Grenville, 8½ to 9½; Wheal Jane, 4½ to 5; Wheal Kitty, 5 to 5½; Wheal Pevor, 27 to 28; Wheal Uny, 4½ to 5.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, sharebrokers, Queen's Chambers, Market-street, Manchester (April 1), write:—The Easter holidays have curtailed the time of business during the past week, and this, together with the settlement of the account and the unprecedented excitement consequent on the elections in this neighbourhood, render a report of business almost impossible, inasmuch as there is hardly any business to report upon. Political feeling runs very high in this locality, and business is nearly at a standstill during the time the contests are in progress.

BANKS are unchanged in quotations. Insurance shares have varied somewhat. Thames and Mersey have risen ½, whilst Manchester and London Fire are ¾, and Lancashire Insurance and Lancashire and Yorkshire Accident ½ each lower.

COAL, IRON, &c., and MINING.—These shares have moved to a very trifling extent, the only changes being Bolckow A (fully paid) 5; ditto A (600 paid), 3; and ditto B, 1½; Cammell ½ and Chillington ½ lower; Canadian Copper, ½; Ebbw Vale, ¼; and Tharist Sulphur, ¼ higher.

COTTON-SPINNING AND MANUFACTURING.—The results that up to the present have come out are highly satisfactory, and prices generally continue to harden, but only few are known much yet. Doubtless during the next few days a great many will be announced, and they will no doubt harden the prices further.

RAILWAYS.—The holidays have to a great extent interfered with business; prices, however, were good until Wednesday, when Easter traffic returns not showing up to expectation caused a decline in value, the heavy lines suffering—more particularly the Great Northern A. North British were firm on the meeting, relapsing with others in sympathy. Movements have been chiefly confined to Canadians, the traffic receipts coming up well, and giving confidence to those who expect full dividends on the trunk and first and second preference next half-year.

ATLANTIC ISSUES have come into request the last few days, and close this evening with an upward tendency.

HULL.—Mr. W. F. SUTTON, stock and share broker, St. Mary's Chambers (April 1), writes:—Despite the political excitement and uncertainty the railway markets have shown strong vitality, and all quotations rule higher than a week ago. Notwithstanding some weakness to-day on the unfavourable change in the weather, and possibly in some measure to the elections so far having gone against the late Government, the belief of the Stock Exchange, it is said, being that more help will be given to markets through the existence of a Conservative administration than through the advent of a Liberal one. This opinion may be open to question, but the tone of the continental press generally most certainly goes to show that this view is correct. Should, however, the traffic continue good there is not much to fear for the immediate future of British railways. The traffic of the Canadian lines this week are again eminently satisfactory, and the want of faith in their future so largely prevalent some little time ago appears to be rapidly disappearing. In view of the continued improved state of trade it is to be wondered that more attention is not given to telegraph cable stocks. The companies are building up large reserve funds, and enhancement of dividends cannot be far distant. Local stocks quietly steady. We quote Hull Banks, 11½ to 12 (3½ 10s. paid); Yorkshire Banks, 20 to 21½; London and Yorkshire Banks, 27½ to 28½; Hull Tram, 10½ to 11½; Earle's Shipbuilding, 17½ to 18½ (35½ paid); British Gas, 34 to 34½; Hull Docks, 90½ to 91; ditto, 4 per cent. Debenture Stock, 99 to 100; and Hingston Cotton Mill, 10 per cent. pref. (7½ paid), 6½ to 7½.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, sharebroker and ironbroker (April 1), writes:—During the past week the Easter holidays intervening have restricted business, but the commencement of the account for the settlement, April 15, has been marked by a renewal of the upward movement in prices and increased business. The fine weather we have experienced encourages hopes of better agricultural prospects this year and a continuance of the revival in trade. Speculative transactions appear to have been much reduced at last settlement, and this, along with an easier money market, encourages purchasers. If the metal markets improve, there is every reason to expect another run on mining shares.

In shares of coal and iron companies the movements for the week comprise advances of 10s. per share on Steel Company of Scotland; 4s. 6d. on Clyde Coal; 3s. on Benhar, 1s. 6d. on Monkland; and 1s. 6d. on Chillington; but Chillington Iron are reduced 10s. per share; Benhar have improved from 48s. to 52s. 6d. Pig Iron Market has been firmer, from 55s. to 56s. 9d. The low prices are beginning to attract investors, and there is not much iron on sale; so when a quantity is wanted it is difficult to obtain unless at increased prices, which shows that the bears have sold as much as they care about. It is possible there may not be much improvement for some time yet; but there will likely be occasional spurts, as the stock is decreasing, although the make is increased. Newport Abercrombie coal shares are considered worth buying, as the company started the year with a balance of profit of over 400%, which, with the current year's profit, should enable them to pay a dividend of 10s. per share. Andrew Knowles and Sons are at 8½; Bilbao Iron, 21½; Bolckow, Vaughan, and Co., 87½ to 88; ditto, R. 44½; ditto, stock, 150, all ex div.; Cardiff and Swansea, 60s.; Charles Cammell and Co., 40s. dis.; Chillington Iron, 80s. to 90s.; Clyde Coal, 79s. 6d.; Ebbw Vale, 9½ to 10½; Great Western Colliery, B. 80s.; Henry Briggs, A. 12½; John Bagnall and Sons, B. 20s. to 25s.; Lydney and Wigpool, 15s.; Monkland Iron and Coal, 65s. 6d.; ditto, pref., 6½; Marbella Iron, 73s.; Nerburda Coal and Iron, 7s. 6d. to 10s.; Onna and Cleland Coal and Iron, 30s. to 31s.; Parkgate, 14 prem.; Rhymney Iron, 25½; Scottish Australian, 40s. to 45s.; Shott's Iron, 85; Southall Colliery, 95s.; Steel Company of Scotland, 11; ditto, new, 5½ to 6; Thorp's Gawler Hall, 47s. 6d.; ditto, pref., 9½.

In shares of foreign coal and lead companies business has been more active. Tharist has declined 1½ per share; Rio Tinto shares 10s.; ditto, 7 per cent., 6s. 3d.; and Canadian, 6s. The Verneberg return for last week has been 23 tons good percentage copper ore. The West Prussia Mining Company has declared an interim dividend on the A shares at the rate of 4 per cent. Tharist owned lower, 29½, but has steadily improved to 31½. Copiapo, 12½. Hultafall, 35s. to 45s. New Quebrada, 77s. 6d. Panulicillo, 92s. 6d. Rio Tinto, 5 per cent., 92½.

In shares of home mines there has been more business doing, tin shares being in especial demand. An inflation of prices of mining shares is likely to set in again, and as some of the mines are nearly worked out investors will require to watch their opportunity for realising. The reports from East Chiverton state that the stopes in the 74 have again improved, and the lode in the 90 is looking as if the ore would soon be cut into. The ore ground is making east as well as west, so that it will be run sooner than at the 70. Glasgow Caradon shares have been steady at 27s. 6d. to 28s. 6d., but the new shares are 1s. lower. The quotations for Wheal Croft, 80s. to 85s., is not much lower, being for the divided shares. Aberdare are at 2s.; Berchaven, 7s.; Betws-y-coed, 15s. to 20s.; Carn Brea, 88; Dolcoath, 59; Derwent, 75; East Caradon, 75s.; East Pool, 34; East Monard Gravel, 12s. 6d.; Glenroy, 20s.; Great Laxey, 13½; Gunnslake (Clitters), 5½; Hingston Down, 17s. 6d.; Killaloe Slate, 1s. 3d.; Lady Bertha, 5s.; Marke Valley, 40s.; Minning of Ireland, 67s. 4d.; Nant Rhys, 20s.; North Molton, 15s.; Parys Copper, 25s.; Port Nigel, 55s.; South Cambrian, 3s. 6d.; South Croft, 20s.; South D'Ershby, 20s. 6d.; South Frances, 17; South Comendurrow, 11½; Tankerville, 95s.; Tincroft, 18½; Van, 18½; West Basset, 18½.

West Kitty, 42s. 6d.; West Pateley Bridge, 35s.; Wicklow Copper, 11s. 6d.; Wheal Grenville, 8½; Wheal Pevor, 28; Wheal Owles, 7½ to 8.

In shares of gold and silver mines Richmonds have advanced 5s. per share, to 14; this week's run being 875,000. The reports of the Sierra Buttes Company have been issued; the net profit at the old mine is \$8925 for the half-year, and at the new mine \$21,313. Mining reports of the new mine is especially satisfactory, the appearances are very good, and the prospects point to a long and prosperous future. Tolima Company announces a profit of \$332, estimated for January, also the Frontino and Bolivia Company 12547, profit. Almaden are at 11s.; Australasian Mines, 5s.; Cedar Creek, 2s. 6d.; Chicago, 5s.; Colorado, 57s. 6d.; Consolidated, 12s. 6d. to 17s. 6d.; Don Pedro, 20s.; Eberhardt, 87s. 6d.; Emma, 8s. 9d. to 11s. 3d.; Exchequer, 6s. 3d.; Flagstaff, 50s.; Frontino, 67s. 6d.; Glenrock, 12s. 6d. to 17s. 6d. prem.; I.X.L., 7s. 6d.; Kapanga, 12s. 6d.; Pestarena (pref.), 20s. to 25s.; Rio Grande do Sul, 52s. 6d.; Rossa Grande, 5s.; Surinam, 20s.; South Indian, 37s. 6d. to 42s. 6d.; and Tecoma, 4s. to 6s.

In shares of oil companies business has been very quiet, Broxburn have advanced 5s. per share; Young's Paraffin steady at 12½ to 12½ 3s. 9d.; Price's Patent Candle shares 8½ ex div.; Run-corn Soap and Alkali, 10s. prem.

Very little doing in shares of miscellaneous companies, Earle's Shipbuilding, 18½; Neuchatel Asphalt, 10s. to 12s. 6d.; United Limmer Asphalt, 47s. 6d.; Val de Travers, 7½.

In shares of wagon companies Scottish new shares are reduced 2s., to 59s. to 60s. Prices of others are—Bristol and South Wales, 6½; Bristol, 8½; Gloucester, 10; Swansea, 7s.; Yorkshire, 12½; and United States Rolling Stock, 17 to 18.

Prices of chemical companies shares are—Langdale, 60s.; Law's, 6; ditto (pref.), 10 to 10½; and Newcastle, 95s.

MINERAL POINT TUNNEL COMPANY.—A report has just been issued by this company, which gives a very good idea of the working of the Norris vein. Up to date they have cut with the tunnel thirteen good veins, all of which they will go on and work out. The tunnel is in 1078 feet. The superintendent states that the lode is full of pay streaks of mineral, and is of opinion that by drifting on some larger veins they will soon lead to a body of rich ore.

SOUTH PRINCE OF WALES MINING COMPANY.—This mine is situated near Calstock, in Cornwall, and the undertaking is stated to be a sound and legitimate one. A good deal of work has already been done, and the production of silver has realised from 107 to 7007. per ton. The mine is very cheaply worked, and the capital moderate. They expect to meet with a large bunch of silver.

The following calculations show the yield per cent. on money invested at present prices in the shares named, based upon the last yearly average dividends being maintained:—Crossburn Oil would yield 3½ per cent.; Oakbank Oil, 9½; Scottish Australian Mining, 8½; Scottish Wagon, 5½; Steel Company of Scotland, 4½; Tharist Sulphur and Copper, 4½; ditto, new, 4½; Uphall Oil, 4½; and Young's Paraffin, 8½.

On Contango-day the following were the rates of continuation current:—3d., 2d., and 2½d., on Benhar Coal; 3d., 4½d., 4d., 4½d., 6d., on Canadian Copper; 6d. on Clyde Coal; 2½d. on Don Pedro; 6d. on Flagstaff; 9d. on Flemington; 4½d. on Caradon; 2d. on Caradon, new; 6d. on Glasgow Port Washington; 9d. on Huntingdon; 3½d., 4d., 4½d., 5d., 4½d., on Marbella; 4d. on Monkland Iron; 6d. on Preference; 1d. on Neuchatel Asphalt; 1½d., 2d., on Onna; 3d. on Parys; 6d. on Port Nigel; 6d., 2d., on Rio Tinto; 1s. 6d. on Romans; 8s. 9d. on Shott's; 6d. on South Indian; 2s. 6d., on Tharist; 1s. on W. S. Rolling Stocks; 4½d. on West Kitty; 2d. on Wicklow Copper; 2s. 6d., 3s., on Broxburn; 6d., 7½d., 9d., on Uphall; 9d. on Young's Paraffin; 1s. 3d. on India-rubber; 9d. on Flagstaff Mine; 1s. on Panulicillo; 6d. on Steel Company; 6d. on New; even, Richmond Mine.

On comparing the making up prices fixed to-day for the undermentioned shares with those for the same shares at previous settlement, the variations thus shown to have occurred during the past account are as follows:—Tharist have declined 3s. per share; Glasgow Port Washington, Steel Company of Scotland, and ditto, new, each 10s.; Canadian Copper, 9s. 6d.; Monkland, 6s.; Flemington Coal, Monkland preference, and Rio Tinto each 5s.; Panulicillo, 4s. 6d.; Clyde Coal and Huntingdon each 4s.; Benhar, 3s. 6d.; Onna and Cleland, 2s. 6d.; and Glasgow Caradon 6d. On the other hand, Richmonds have advanced 15s. per share; Broxburn Oil, 12s. 6d.; and Uphall Oil, 7s. 6d. The remainder are unaltered—Glasgow Caradon, new, Flagstaff, Oakbank Oil, and Young's Paraffin.

EDINBURGH.—Messrs. THOMAS MILLER and SON, stock and sharebrokers, Princes-street (April 1), write:—The home railways market has been steady this week, but this day's prices show some fall since yesterday. Canadian stocks have been in demand on the large traffics, and the prices have risen. Atlantic and Great Western Bonds show a larger advance in price. In mining shares Benhar have improved from 48s. 6d. to 51s. 6d.; Canadian Copper, from 51s. 6d. to 54s.; Marbella, from 65s. to 73s. Shott's Iron is quoted 2 lower, at 85. Scotch Banks have been very quiet.

IRISH MINING AND MISCELLANEOUS COMPANIES' SHARE MARKET.

DUBLIN, APRIL 1.—The amount of business doing is very limited, and in mines and tramways there is absolutely nothing. Berchaven's can be purchased for 6s. per share, and other mines are correspondingly depressed. As to Tramways, Dublin may be quoted 14½ to 15; Liverpool, 12; North Dublin, 8½ to 8½; and Tramways Union, 6½ to 6½. The quotation for miscellaneous shares are, Arnot and Co., Dublin, 6½; Goulding and Co., 8½; Mackenzie and Sons, 13 to 13½; and National Discount of Ireland, 4½.

CORK.—Messrs. J. H. CARROLL and SONS, sharebrokers, South Mall (March 31), write:—There was very little business done to-day; but the tone was firm, and Great Southern changed hands at 112½; some Midlands were also done at 93½. Munster Bank shares remain 63, and the new shares from 9s. 3d. to 9s. 9d. per share prem. Nothing done in Nationals or Provincials. No change in Cork Steam-Packets, which remain about 12½; and Lyons shares wanted at 3½. Goulding's shares also in demand at last price, but Levys remain 6½ to 6½ per share.

[CONCLUDING NOTICE.]

METALLURGY: THE ART OF EXTRACTING METALS FROM THEIR ORES.

SILVER AND GOLD.—PART I.

The section devoted to silver assaying treats, first, of the assay of argentiferous ores and metallurgical products, the author's object being to describe as concisely as may be compatible with clearness the art as practised in the metallurgical laboratory of the Royal School of Mines. After detailed description of the apparatus, &c., used, there is an explanation of the method of sampling in order to obtain accurate results, and the whole process is then minutely described. The next section relates to the assay of gold and silver bullion, coin, and plate, the chapter on silver assaying concluding with accounts of the Chinese method of assaying silver bullion, and of preparing sycee or uncoined silver; and of the states in which silver is imported into England, and the necessity of precautions with respect to its purchase.

In the chapter on the separation of silver from metallic copper by the lixiviation process, Dr. Percy remarks that the earliest description which he has found of this process is that in Biringuccio's remarkable treatise on Metallurgy, published at Venice in 1540, though it was probably in use long previously, and the next that in Agricola's well-known work, first published in 1555. But the most satisfactory old account of it is given by Schlüter, in his Gründlicher Unterricht von Hütte Werken, published in 1738, for there has been no subsequent material change, at least in German smelting works, either in the apparatus used or in the mode of conducting the process. The process of lixiviation is then systematically treated of—the preparation of the mixture of argentiferous copper and lead, or the leading; the lixiviation of the mixture; the treatment of the residual copper from the lixiviation of the mixture, or the drying process; and the treatment of the oxidised and accessory products. Under the head of financial details connected with parting, Dr. Percy states that in 1875 somewhat more than 200,000 kilos. of silver were obtained as the result of parting at the German Gold and Silver Parting Establishment, at Frankfurt-on-Main. The charge for parting amounts on the average to 1-2 marks per kilo. of alloy, varying from 300 to 900 fine (that is, inclusive of gold and silver). In a well conducted establishment the loss of silver in parting ought not to exceed 0-1 per cent. of the silver contained in the alloy operated upon. All the auriferous silver produced at the smelting-works of the Oberharz is parted at the establishment attached to the Lautenthal Smelting-Works. The auriferous silver (including nearly 4 lb. coin) parted during 1876 was 22,966½ lbs., and yielded a little over 166½ lbs. of fine gold. In the preceding year less than 64½ lbs. of gold was produced. The cost of parting per pound of auriferous silver amounted to 39 pfg., and after deducting the profit derived from the sale of the sulphate of iron obtained as a by-product to 37 pfg. (a very small fraction, or ¼d. per ounce troy). In the preceding year the net cost was 2 pfg. less.

Silver smelting, which forms the subject of the third section of the book, is divided into three portions—smelting of ore containing silver chiefly in the metallic state, combined silver and lead smelting, and amalgamation or the extraction of silver from its ores by means of mercury. In the first of these the processes in use at Kongsberg, in

Norway, and at the Wyandotte Works, in Michigan, are described and commented upon. In the second, silver smelting in England, at Freiberg, and in Japan are in turn described; and in the third there are very full descriptions of the various processes in use in Mexico and elsewhere. By way of appendix, there is a note by Prof. Liveridge, of Sydney University, on the occurrence of silver ores in New South Wales; notes on silver and mercury, silver and platinum, silver and tin, and silver and cadmium; a note from Dr. Sterry Hunt on Silver Islet; and a note on the liquation of hard lead, correcting an error in the volume on the Metallurgy of Lead, published in 1870. The specimen described therein, at p. 467, as the product of liquation, was obtained not by that process but by smelting hard lead and various residual substances containing lead in admixture with poor coppery regulus, in order to separate copper from hard lead. The value of the volume is enhanced by the excellent index which it contains, and which renders every statement in the book readily accessible, whether the reader knows only whose opinion upon a given subject he desires to obtain or what particular point he seeks information upon. A more exhaustive work upon the subject need not be desired.

With regard to the thoroughly practical and utilitarian character of the information contained in the volume, it can be most readily judged of by considering the character of the author, and this cannot be better or more concisely expressed than has been done in the *Athenaeum*. Dr. Percy is an eminent example of the best kind of technical instructor. He was trained in a school of exact science. Originally he distinguished himself as a physician and an experimental physiologist; but during his residence in Birmingham he became attached to the pursuit of metallurgical enquiry; and on the opening of the Museum of Practical Geology in 1851 he did not hesitate to abandon a prominent position in the medical profession in order to follow the bent of his inclinations in organising and teaching metallurgy. Up to the present time his class has been the only one in this country devoted to adequate metallurgical enquiry. For nearly thirty years Dr. Percy has pursued his career in the laboratory, making the most exhaustive analytical investigations. Session after session he has delivered not merely stereotyped courses of lectures, but lectures imparting new knowledge, the result of his constant and systematic studies. He has thus trained as eminent a body of specialists as have ever been produced in any school in any country. There is abundant evidence of this in the volume before us, and in the names of his friends and coadjutors, Snellus, Roberts, Tooke, Dick, Weston, and others, all old pupils, whose assistance in this volume has been most fully acknowledged. But what has been his reward? It is with shame and indignation that in the preface to this volume will be read Dr. Percy's remarks on his resignation of his position as Lecturer on Metallurgy in the Royal School of Mines. He rejoices in a freedom which places more time at his disposal, and he hopes speedily to complete his task. But he betrays the pang which this separation occasions him. Such a man should never have been subjected to the necessity of resigning a position which he had made especially his own. Consolation may, however, be found in the certainty of its being universally felt, if not openly said, that a serious mistake has been made, and that the Department of Science and Art has dealt a severe blow to technical teaching in this country.

SOUND INVESTMENTS.

GRAND TRUNK RAILWAY OF CANADA.—Those who have been the most sceptical as to the future of this railway are now among the strongest believers in it. There is ample foundation for their confidence. The traffic receipts are beginning to derive some benefit from the opening of the line to Chicago, and there is no doubt that each week will show larger and still larger increases than those to which we have recently been accustomed. As compared with the previous year, the receipts for the last two weeks show increases of 10.870%, and 12.923%, or 34½ per cent. and 42½ per cent. respectively. No railway in Europe can show such progress. It is almost certain that this year the First and Second Preferences will receive their 5 per cent. interest in full, and it is, therefore, surprising that with the dearth of good investments the First Preferences can be bought to yield 6½, 8s. 4d. per cent. There is the prospect not only of income, but also of considerable improvement in capital value.

Totally apart from the intrinsic merits of the railway, there is a contingency which should be steadily kept in view—the probability that the Dominion Government may desire to become possessed of this railway, which is now really what its name implies, the Grand Trunk of Canada.

The Government of Canada have 3,111,500*l.* already invested in this railway, which does not rank for dividend until the ordinary stock has received 6 per cent., and added to this their possession of the Intercolonial Railway, their purchase of the Riviere du Loup line from the Grand Trunk, and their construction of the Canadian Pacific Railway for opening up the western districts of Canada, all tend to show their desire to acquire the railways. India has made a beginning by the purchase of the East Indian Railway, and in the case of our other colonies, Australia, New Zealand, and the Cape, the railways are the absolute property of the Governments.

The present moment would be a favourable one for the Government, but hardly so for the shareholders, as the prospects of the Grand Trunk itself were never brighter. Delay is all in favour of the latter, as experience has shown in the acquisition of the telegraphs and the proposed acquisition of the water companies by the English Government, in both of which instances not only present but prospective values have been demanded. The Dominion Government would have no difficulty in raising a loan at 4 per cent. for purchasing the railways. Presuming that the 5 per cent. debenture stock would remain a first charge upon the property, the Government would only have to deal with the preference and ordinary shareholders. No doubt, if an arrangement could be arrived at before the close of this year, the first preferences might be obtained at 100, the second preference at 90, the third preference at 70, and the ordinary stock at 50. These prices are by no means extravagant, seeing that not many years ago such quotations were current when the position and prospects of the railway were nothing like so brilliant as they are to-day.

LONDON, CHATHAM, AND DOVER RAILWAY.—Shareholders are to be congratulated on the fact that at last the strong position which is occupied by this company is attracting the attention of a new class of investors. Those who have held on in faith for so many years are not likely to sell now, when such bright prospects are opening out. It will be remembered that when, by the aid of the proprietors, I upset the fusion scheme with the South-Eastern, it was estimated that the progress of the Chatham would have been in the proportion of 31 per cent., as compared with 69 per cent. of the South-Eastern. The growth of the Chatham, however, has been largely in excess of these estimates, and I think shareholders may fairly review their position to-day with strengthened hopes.

Apart from the steady development which is going on all over the system, I have persistently laid the greatest stress upon the importance of the connection which this company enjoys with the Metropolitan and Northern lines, by its extension across the Thames from Blackfriars, via Ludgate to King's Cross. This section of the line runs through the very centre of the new Fruit and Vegetable Market, the foundation stone of which was laid last month. It is almost impossible to over estimate the benefits which this market will bring to the Chatham Company, as it will practically enjoy the command of the traffic in fruits and vegetables with Kent, "the garden of England," and the Continent.

In order to demonstrate to shareholders at a distance the value of these connections to which I have so frequently referred, I issue with this circular a map, showing the lines within the City of London, and the position of the new City Markets which they intersect.

The Preference Stock, yielding 4 per cent. to a present investor, with a prospect of 4½ per cent. at an early date, is one of the cheapest dividend-paying English Railway Securities to be found. The Ordinary

Stock must of course be regarded as a speculative investment to look up for the future.

METROPOLITAN DISTRICT RAILWAY.—It is not many years since I recommended the purchase of this stock at 22. The price now is 82, and to those who can afford to invest regardless of immediate dividend the quotation is by no means extravagant, considering the prospects of the line. The Metropolitan lost a great chance when they refused to amalgamate with the District upon the terms proposed of giving 50*l.* of Metropolitan for 100*l.* of District stock. The day may not be far distant when they will be glad to amalgamate upon equal terms. Such an opinion may now appear to some to be quite as wild as many regarded the recommendation to buy District stock at 22.

ATLANTIC, MISSISSIPPI, AND OHIO RAILWAY.—The improvement in this railway is very remarkable. The official report of the working for the month of January shows that the net receipts amounted to \$84,295, against \$28,705 in January, 1879, the increase being \$55,590, or no less than 193 per cent. Negotiations are now taking place between the English and Dutch committees, with a view to their deciding upon an united course of action in the interests of the bondholders.

MEXICAN RAILWAY.—The steady growth of the traffic on this railway continues, and the various securities from the 6 per cent. debentures to the ordinary shares are decidedly attractive investments. The buying of the debenture bonds in the market by the company out of the subvention money received from the Mexican Government will, no doubt, commence immediately, and these continuous purchases must have the effect of improving the value of the stock.

SOUTH INDIAN GOLD MINES.—The almost unparalleled success which attended the introduction of the South Indian and Indian Glenrock Gold Companies has naturally brought to the surface a multitude of gold mining projects from all quarters of the globe, but the bulk of them, if not all, appear to have received very little support from the public, as those who have hitherto been in the habit of investing in mines have learnt by bitter experience to become discriminating, and the properties which have been offered for subscription lack one very important feature which distinguished both the South Indian and Indian Glenrock Companies—the Government brand as to their merits.

The report of the Indian Government upon the gold mines of Southern India, just issued, is of deep interest to all present holders or intending investors in the shares of these two companies, and I should advise each one to obtain for himself a copy of the Parliamentary Blue-book, as the perusal of this official document must be convincing as to the intrinsic merits of both undertakings.

The mere butterfly speculators who applied for shares simply to sell at a premium have evidently been entirely cleared off the market, which is consequently in a much more healthy condition. The fully-paid shares of the South Indian and Glenrock Companies can now be bought at 2*l.* respectively, and upon such a report from Government they must advance considerably.

CANADIAN COPPER AND SULPHUR COMPANY.—A meeting has been called for the 15th inst., for the purpose of raising a small amount of debenture stock to enable the directors to develop and work more vigorously the various valuable properties for the benefit of the shareholders, or to grant leases of a portion thereof to responsible persons on very favourable terms. I am assured upon good authority that this company can produce refined copper of the best quality at 50*l.* per ton net. The lowest prices touched for this class of copper during the recent depression was 65*l.* per ton; its present value here is 75*l.* per ton, while owing to the protective duties in Canada the last sales there realised 86*l.* per ton net.

In view of the important discovery upon the Acton Estate, and the circumstances narrated above, the forthcoming meeting will be one of special interest to the proprietors, and I have very little doubt that when the position and prospects of the company are made known the 4*l.* fully paid shares will advance in value. They are now quoted at 2*l.* 15s. to 2*l.* 17s. 6d.

TRAMWAYS.—The traffic returns are improving, and as the summer advances even better results may be expected. The popularity with which tramway securities were at one time regarded will slowly, but surely, return to them, as they are a class of investment which everyone can understand. Balance-sheets are issued regularly every half-year showing the exact position of the undertakings, and shareholders can themselves personally inspect their properties. It is surprising that there should exist a class of small investors, who, having once made the mistake of entrusting their savings to such impetuous Governments as Turkey, Peru, Honduras, San Domingo, Paraguay, &c., should still cling to these bonds, in the hope of "something turning up" to benefit them, while they could employ their dormant money in such home securities as tramways, which, even in bad times like those through which we have recently passed, have paid a fair rate of interest. Dividends will, no doubt, increase this half-year, thus tending to the improvement in capital values.

DUBLIN TRAMWAYS.—At last the directors of the various companies in this city, which is so admirably adapted for tramways, have in the interest of their proprietors entered into a preliminary agreement which will, no doubt, culminate in amalgamation. The shareholders of all the companies will, as a matter of course, agree to the proposal to exchange their shares for those in the Dublin United Tramways Company. All who, like myself, are well acquainted with the tramways in Dublin must have been impressed with the fact that in working four distinct companies like the Dublin, Dublin Central, North Dublin, and Dublin Southern District (the latter owned by the Imperial Company), there must have been an amount of waste in administration, servants, horses and vehicles, which would, of itself, have been sufficient to pay a dividend on the total capital. Happily for the shareholders, and equally fortunate for the inhabitants of Dublin, who are nearly all tramway travellers, there is not the slightest fear as to the success of the scheme. The recent advance in the prices of the various shares is in anticipation of it, and any opposition to the carrying of a measure which is so manifestly to the interest of all concerned will be certain of complete annihilation. I feel sure that the shares of the new company, when launched, will command a good premium.

IMPERIAL TRAMWAYS.—I am pleased to be able to state that the prospects of this company are decidedly brightening. The Dublin Southern line will, under the new tramway combination in that city, now have a chance of development which has hitherto been denied to it. Another favourable feature is the permission granted by Parliament for the conveyance of passengers on the Corris line, where steam power is used.

BORDEAUX TRAMWAYS AND OMNIBUS COMPANY.—It was fully expected that the first six miles of this tramway system would have been opened in time for the Easter traffic, but it was found impossible to accomplish this. Nevertheless, the returns from the omnibus service alone for the four weeks ending March 26, amounted to no less than 4697*l.*, or an average of 1174*l.* per week. This company has already in hand the revenue from Nov. 1 last, so that when the accounts are made up to June 30 there will be eight months' profits to distribute, derived from eight months of omnibus traffic and three months of partial tramway traffic. In the course of the next few months there is every probability of these shares being quoted at a considerable premium. Tramways Union 5*l.* shares, for instance, are at 7*l.* (and they are well worth it), equal to 14*l.* for a 10*l.* share. There is every reason why the Bordeaux shares should be equally valuable.

I am so confident that when the tramway lines are opened the Bordeaux Company will be one of the best paying systems on the Continent that I have secured the balance of unallotted shares in the hands of the Tramways and General Works Company, except those reserved for issue in Bordeaux, and I am now prepared to receive applications for the same at the price of £10 10s. per share, to be placed in the buyer's name free of all expenses, and with this circular I enclose a Form of Application, which, if signed and returned to me, shall be considered in the order of receipt.

—From Mr. W. M. ABBOTT'S Circular for April, Tokenhouse Yard, London, E.C.

SATURN.—The trustees have issued a circular to the debenture holders stating that the expectations as to deriving permanent income from leasing Sandy Land furnaces were not realised, and,

owing to the improvements introduced in furnaces, those of the trust were comparatively worthless. The title to the mines was too insecure to justify expenditure, but a United States patent has now been obtained, and it is considered that the general improvement in the prospects of Utah mining generally gives hopes of the satisfactory development both of the mine and of the Sandy property.

LINARES.—The directors' report, to be submitted to the meeting on Thursday, states that the profit for the half-year ended Dec. 31 was 6573*l.* 6s. 11d., which favourable result was in part derived from the improved price of lead in the last three months of the half-year, and also from the increased quantity of ore extracted from the mines. The reserves are, nevertheless, 700 tons larger. The Quinteros Mine has maintained its position during the half-year, and has yielded a portion of the profit now shown, notwithstanding that a large outlay has been incurred in explorations. The levels in this mine are poor at present, but they show indications of improvement. The lead market has fluctuated considerably since the last general meeting, prices having advanced one time more than 4*l.* per ton higher than they were in September last. A portion of this advance has been lost, but prices are still such as to yield good profits to the company, seeing that its mines are so productive and are cheaply worked. The balance standing to the credit of profit and loss account on Dec. 31 amounted to 6634*l.* 16s. 1d., out of which the directors declared a dividend of 8s. per share, payable this day, 5999*l.* 4s., and placed to the credit of the reserve fund 400*l.* = 6399*l.* 4s., leaving a balance to carry forward of 235*l.* 12s. 1d.

FORTUNA.—The directors' report, to be submitted at the meeting on Thursday, states that the profit on the six months to Dec. 31 was 6743*l.* 15s., which has enabled the directors to pay an increase dividend (5s. per share), and carry 500*l.* to the reserve fund. At Canada Inco's Mine the operations on the south lode have been attended with favourable results, and San Pedro shaft, which is situated on this lode, is about to be sunk to a new level. On the old lode the 100 east of Lowndes' shaft, and the 120 west of O'Shea's shaft, have each been opening out productively. At Salinas Mine the sinking of the main shaft has recently been completed to the 175. In the sinking of this shaft the lode was generally productive, and was valued at one time or high as 4 tons of ore per fathom. Judging from this and from the fact that the lode in the upper levels has been rich, there is great probability that the 175 will open out a valuable run of ore ground. The new mines acquired have not all been settled for as yet, but the directors are able to report that the total purchase-money, including the 1112*l.* 2s. 1d. charged in the balance-sheet, will amount to about 2900*l.* The working cost in connection with these mines up to the end of December, as will be seen from the balance-sheet, amounted to 1385*l.* 8s. 2d., so that the total outlay on the new mine to that date has been about 4285*l.* out of 5000*l.* set aside for them out of the reserved fund. To provide funds for their further development up to the next half-yearly general meeting, the directors estimate that an additional grant of 3000*l.* from the reserved fund will be necessary. It is hoped that these new mines will be brought into a profitable state by the aid of the reserved fund, without trenching on the dividends of the shareholders.

ALAMILLOS.—The directors' report, to be submitted at the meeting on Thursday, states that the result of the past six months' working, has enabled the directors to pay a dividend of 1s. per share. The profit of 2537*l.* 8s. 4d. shows a large increase on that of the previous six months, which arises from the improved price of lead and the increased extraction of ore from the mines. The increase in the raisings has been mainly obtained from portions of the mines previously unworked, which has been let to miners for short periods on contract, paying them so much per ton for the ore they raise. This system has so far proved advantageous to the company, and it is hoped that important discoveries of ore will result from it. The exploratory works continue to be actively carried on. The lode in the different levels has fluctuated in value; it is, however, satisfactory to find that after raising 1365 tons of ore the reserves are not less than they were six months ago, being again estimated at 2500 tons. There is no feature to comment on in regard to the smelting and the transport; both have been conducted with the usual regularity. The profit on six months to date was 2537*l.* 8s. 4d.; less balance on June 30, 206*l.* 0s. 9d. = 2331*l.* 7s. 7d. This amount has thus been dealt with: Dividend of 1s. per share, payable this day, 1750*l.*; carried to reserve fund, 300*l.* = 2050*l.*; leaving balance to carry forward, 281*l.* 7s. 7d.

LONDON AND CALIFORNIA.—The report to be presented at the meeting on Thursday states that the amount now standing to the credit of profit and loss is 19,337*l.* 7s. 11d., which the directors recommend be carried forward as usual. The sum brought into the account was 24,078*l.* 12s. 10d., which has been reduced by 4741*l.* 4s. 11d. expended in the development of the new property, the erection of hoisting works there, and in prospecting the Original Amador, which produced in the half-year 2929 tons of ore, of which 2923 tons yielded in the mill 32,982*l.* 6d., or an average of 11*l.* 28 per ton. The development of the new property has been proceeded with as rapidly as circumstances would admit. In the Maryland Tunnel there were so detached bunches of quartz found, but no continuous bodies of ore. In the Seaton Tunnel some small bodies of excellent ore were found, which Mr. Johns hopes will lead to much larger bodies in depth. The new shaft has now been completed to the tunnel, about 170 ft. from the surface. The directors must express their regret that the explorations during the half-year have not developed anything of value in the east shaft of the Original Amador. The stopes in the upper part of the mine, though now getting poor, have held out better than was anticipated, and have been the means of furnishing funds for the development of the new properties. To them the directors can turn in a more hopeful spirit. Mr. Johns' report shows that ore does exist in the Seaton, and a strong vein is observable going down, while the general opinion on the other side is favourable to the future prospects of this mine.

SIERRA BUTTES.—The report to be presented at the meeting on Thursday states that the net profit of the half-year amounted to 6925*l.* 0s. 9d., of which the sum of 500*l.* has been applied to reduce cost of the Independence Mine and Water Rights. Out of the remaining balance at disposal the directors recommend that a dividend of 1s. per share, free of income tax, amounting to 6125*l.*, be declared at the forthcoming general meeting; the amount to be carried forward to the next account will then stand at 9667*l.* 6s. 8d. The mine produced during the half-year 33,101 tons of ore, at an average cost of 83*l.* 7d. 4 per ton; and of this quantity the mills crushed 32,903 tons, at an average cost of 80*l.* 11d., which gives a total cost of 83*l.* 8d. 2 per ton, against 83*l.* 4d. in the previous half-year, thus showing a slight reduction in the average working expenses. The yield of the ore in free gold was 84*l.* 5s. 2d., and with that obtained from the tailings 84*l.* 9s. 4d., against 85*l.* 8s. 8d. in the previous six months. This decrease in the yield as compared with the previous half-year was caused by the sudden falling off in the value of the stopes, principally during October and November. They expended 23,055 in prospecting, and although the results are rather discouraging, Mr. Johns has strong hopes that ore bodies will be opened in the seventh level during the coming half-year. Though the half-year's operations have not been so satisfactory as could have been wished, and the stopes now being worked do not appear to promise much immediate improvement, yet Mr. Johns is hopeful of profitable improvements in the seventh and eighth levels.

[For remainder of Meetings see this day's Supplement.]

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Mar. 30—	Pandora.....	20	£10 1 0	Sheldon, Bush, and Co.
April 1—	Van.....	100	11 15 0	Panther Lead Co.
—	ditto.....	50	11 16 0	Weston, Son, and Co.
—	ditto.....	50	12 1 6	E. C. Goodhart and Co.

GORSIEDD AND MERLYN sold last week 14 tons of lead at 12*l.* 5s. per ton.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
April 1—	Van.....	100	£3 3 0	Kenrick and Son.
—	Frongoch.....	50	3 18 0	Vivian and Son.
—	ditto.....	30	3 5 6	ditto
—	ditto.....	50	3 18 0	Kenrick and Son.
2—	Pandora.....	25	2 15 6	Vivian and Son.

COPPER ORES.					
Sampled March 17, and sold at Tabb's Hotel, Redruth, April 1.					
Mines.	Tons.	Price.	Mines.	Tons.	Price.
Mellanear.....	79	£4 8 6	West Tolgus.....	61	£6 17 0
ditto.....	73	3 3 0	ditto.....	40	5 13 6
ditto.....	75	3 5 0	West Seton.....	30	3 18 6
ditto.....	70	3 3 6	ditto.....	28	4 6 0
ditto.....	68	4 8 0	ditto.....	25	4 18 0
ditto.....	64	2 12 6	South Crofty.....	25	3 6 0
ditto.....	63	3 14 6	Wheel Basset.....	9	3 7 6
West Tolgus.....	77	4 9 6	South Condurrow.....	7	8 0 0

TOTAL PRODUCE.										
Mellanear.....	497	£1763	3	0	South Crofty.....	25	£	82	10	0
West Tolgus.....	253	1525	13	6	Wheel Basset.....	9		30	7	6
West Seton.....	81	349	11	0	South Condurrow.....	7		56	0	0
Average standard..... £ 98 8 0 Average produce..... £ 74										
Average price per ton..... 872 tons Quantity of fine copper, 63 tons 1 cwt.										
Quantity of ore..... Amount of money..... £3807 5 0										
LAST SALE.—Average standard... £101 12 0 Average produce..... £ 98										
Standard of corresponding sale last month, £102 17 0 Produce, 6½										

COMPANIES BY WHOM THE ORES WERE PURCHASED.			
Names.	Tons.	Amount.	
Vivian and Sons.....	253½	£1003 11 3	
Grenfell and Sons.....	75	538 5 0	
Nevill, Drice, and Co.....	155½	548 16 0	
Williams, Foster, and Co.....	293½	1319 4 6	
Mason and Elkington.....	94½	399 8 3	
Total.....	872	£3807 5 0	

NO SALE on Thursday next, April 6, or Thursday week, April 15.

Ticketing on Wednesday, May 13, instead of on the 20th.

MINE "EL CALLAO,"
GUAYANA, VENEZUELA.
COUPONS OF SHARES 322
GOLD IN BARS.—Produce in the month of January, 1880, remitted Ozs. 3337.11
to Messrs. Baring Brothers and Co.
The Treasurer of the Company, The President of the Company,
G. BARNEWITZ. A. SICCIONI.

MINE "EL CALLAO,"
GUAYANA, VENEZUELA.
COUPONS OF SHARES 322
GOLD IN BARS produced in the month of February, 1880, and re- Ozs. 4098.62
mitted to Messrs. Baring Brothers and Co.
Dividend distributed in the month for each coupon \$100
The Treasurer, The President of the Company,
G. BARNEWITZ. A. SICCIONI.

THE LINARES LEAD MINING COMPANY (LIMITED).
Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the Shareholders of this company will be HELD at this office on THURSDAY, the 8th of April next, at One o'clock P.M.
To receive the accounts, balance-sheet, and reports of the directors, auditors, superintendents, and mining agents for the half-year ending the 31st December, 1879.
To elect two directors in the place of John R. Peill and Frederick W. Bigge, Esqs., who go out of office by rotation. They are both eligible, and offer themselves for re-election.
To appoint two auditors for the ensuing year. Edward L. Agar and William Carter, Esqs., who are eligible, offer themselves for re-election.
And for general business, as authorised by the Deed of Settlement.
By order of the Board, H. SWAFFIELD, Secretary.
5, Queen-street-place, Upper Thames-street, London, E.C., 31st March, 1880.

THE ALAMILLOS COMPANY (LIMITED).
Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders in this company will be HELD at this office, on THURSDAY, the 8th April next, at a quarter to Two o'clock P.M.
To receive the accounts and balance-sheet, with reports from the directors, auditors, superintendents, and mining agents, for the half-year ending 31st Dec., 1879.
To elect two directors in the place of William Cox and Robert Henty, Esqs., who go out of office by rotation. They are both eligible, and offer themselves for re-election.
To appoint two auditors for the ensuing year. Edward J. St. John and William Carter, Esqs., who are eligible, offer themselves for re-election.
And for general business, as authorised by the Articles of Association.
By order of the Board, H. SWAFFIELD, Secretary.
5, Queen-street-place, Upper Thames-street, London, 31st March, 1880.

THE FORTUNA COMPANY (LIMITED).
Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the Shareholders in this Company will be HELD at this Office, on THURSDAY, the 8th April next, at a quarter past Two o'clock, P.M.
To receive the accounts, balance-sheet, and reports of the directors, auditors, superintendent, and mining agents for the half-year ending 31st December, 1879.
To elect two directors in the place of John P. Judd and Frederick W. Bigge, Esqs., who go out of office by rotation. They are both eligible, and offer themselves for re-election.
To appoint two auditors for the ensuing year. E. J. St. John, Esq., and Richard Donagan, Esq., who are eligible, offer themselves for re-election.
And for general business, as authorised by the Deed of Settlement.
By order of the Board, H. SWAFFIELD, Secretary.
5, Queen-street-place, London, 31st March, 1880.

ROMAN GRAVELS MINING COMPANY (LIMITED).
Notice is hereby given, that the Directors have THIS DAY DECLARED A DIVIDEND of £3000 (free of income tax), being FIVE SHILLINGS PER SHARE on the 12,000 Shares of the company, PAYABLE on and after WEDNESDAY, the 21st proximo, to the Shareholders now on the Register.
By Order, F. F. WILSON, Secretary.
30, Finsbury-circus, London, E.C., 31st March, 1880.

WEST WHEAL TOWAN (COPPER AND TIN)—EAST ELIZA (COPPER AND TIN)—NEW COMBARTIN (SILVER-LEAD).
I beg to refer your readers to my letter in this day's Journal, page 389, in respect to the two former. Special reports and exclusive data and intelligence can be had by intending investors on application to me.
New Combartin is proved rich for silver-lead ores—48 ozs. average per ton. The characteristics and lodes are identical with Combartin, and doubtless will prove equally profitable. Capt. John Treweek says No. 3 lode is 20 ft. wide, and equal in promise with old Combartin lode, which he has seen yielding £400 to the fathom. Mr. William Newton has assayed ores yielding 1000 ozs. silver to the ton, and other experts are sanguine of success and rapidly expanding yield.
Early application for shares is requested by R. TREDINICK, Consulting Engineer, 6, Midway Chambers, 82, Bishopsgate-street, London, E.C.

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 10, OZZELL STREET, NORTH, BIRMINGHAM.
STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:
REFINED METALLIC NICKEL.
REFINED METALLIC BISMUTH.
OXIDE OF COBALT.
GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c.
NICKEL AND COBALT ORES PURCHASED.

GOLDENHILL COBALT, NICKEL, COLOUR, BORAX, AND CHEMICAL WORKS.
NEAR STOKE-UPON-TRENT, STAFFORDSHIRE.
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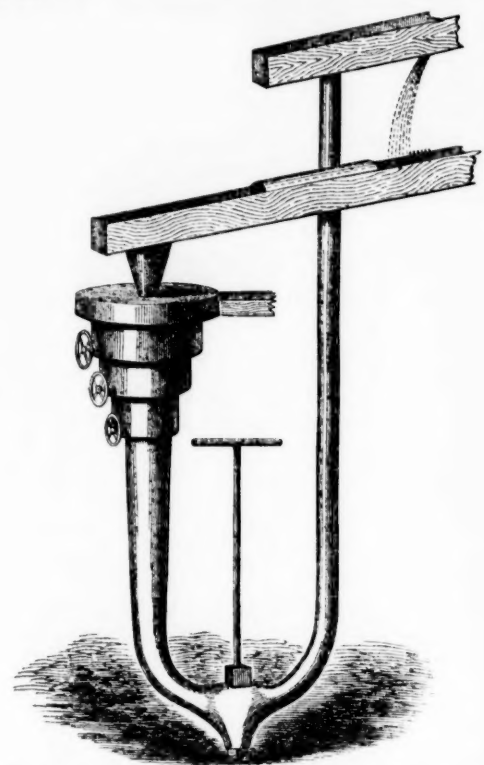
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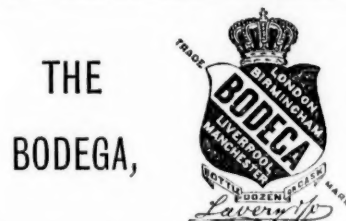
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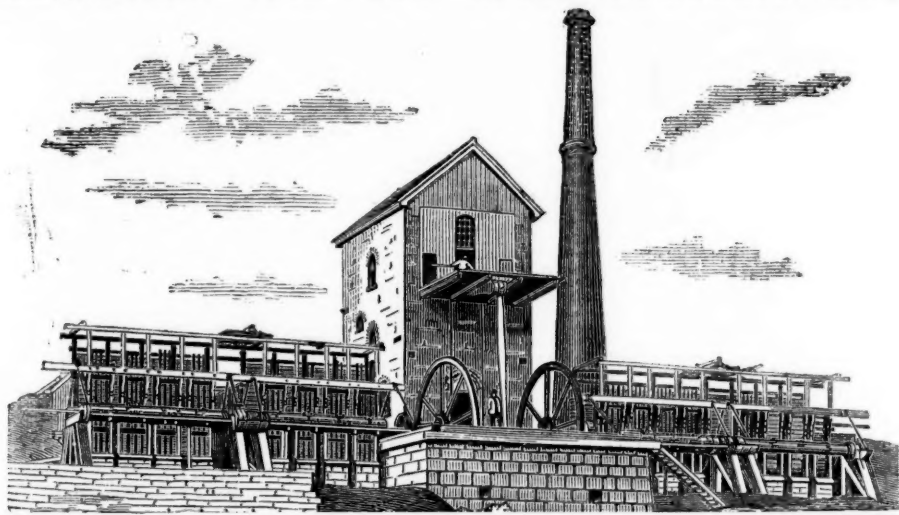
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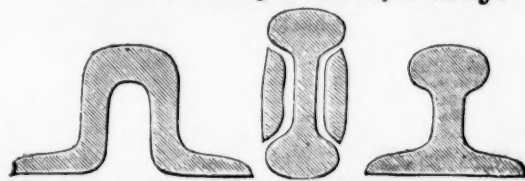
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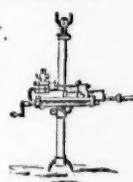
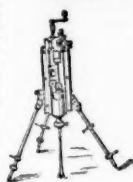
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BRITISH DIVIDEND MINES.

Shares.	Divid.	Last wk.	Clos. pr.	Total div.	Per sh.	Last pd.
10000 Oatton, I, Cardigan*	2 0 0	2 1/2	1 1/2	0 4 0	0 0 0	0 0 0
10000 Oatton, I, Cardigan*	56 7 6	80	85 90	308 0 0	1 0 0	0 0 0
10240 Devon Gt. Consols, c, a, Tavistock*	1 0 0	13	12 1/2	117 3 0	0 0 0	0 0 0
4296 Dolcoath, c, t, Camborne	10 14 10	56	57 1/2	115 1 3	1 0 0	0 0 0
6400 East Pool, t, c, Illogan	0 9 9	30	34 36	18 15 3	1 2 6	Mar. 1880
40000 Glas. Car., c, 30000sh. £1 pd., 10000 15s. pd.	1 1/2	1 1/2	1 1/2	0 13 10	0 0 0	0 0 0
8500 Gorsead and Merilyn Con., I, Flint.	2 10 0	2 1/2	2 1/2	0 5 0	0 0 0	0 0 0
15000 Great Laxey, I, Isle of Man*	4 0 0	18 1/2	18 1/2	25 6 0	0 0 0	0 0 0
6400 Green Hurth, I, Durham*	0 6 0	8	7 1/2	2 10 0	0 0 0	0 0 0
20000 Grogwinion, I, Cardigan*	2 0 0	4	3 1/2	0 14 10	0 10 0	0 0 0
2800 Isle of Man, I, Isle of Man*	25 0 0	—	—	82 5 0	0 10 0	0 0 0
20000 Lerdhills, I, Llanarkshire	6 0 0	3 1/2	3 1/2	0 15 0	0 0 0	0 0 0
400 Lerdhills, I, Llanarkshire	18 15 0	35	30 35	600 10 0	1 0 0	0 0 0
10000 Meunear, c, Hayle*	2 0 0	5 1/2	5 1/2	0 14 0	0 0 0	0 0 0
9000 Minera Mining Co., I, Wrexham*	5 0 0	12	10 11	63 9 2	0 0 0	0 0 0
20000 Mining Co. of Ireland, c, a, t, 10 p.c.	7 0 0	3 1/2	3 1/2	24 0 0	0 0 0	0 0 0
5328 North Busy, t, c, Chacewater	0 5 8	1	1 1/2	0 3 4	0 0 0	0 0 0
11829 North Hendre, I, Wales	2 10 0	7 1/2	7 1/2	3 10 0	0 0 0	0 0 0
8063 Ditto	1 0 0	4 1/2	4 1/2	0 7 0	0 0 0	0 0 0
6000 Penant, I, bar, North Wales*	5 0 0	3 1/2	3 1/2	0 10 0	0 0 0	0 0 0
12000 Phoenix United, t, c, Link	5 10 3	5 1/2	5 1/2	0 2 6	0 0 0	0 0 0
18000 Pr. Patrick, s, t, (als. 12000 pf. 10 p.c.)	1 0 0	3	2 1/2	0 10 0	0 0 0	0 0 0
10000 Red Rock, I, Cardigan	1 0 0	3	2 1/2	0 10 0	0 0 0	0 0 0
12000 Roman Gravel, I, Salop*	7 10 0	10 1/2	10 1/2	8 1 0	0 0 0	0 0 0
4000 Rhylalun, I, Wales	10 0 0	10	10	0 5 0	0 0 0	0 0 0
512 South Cardon, c, St. Cleer*	1 5 0	130	130 140	746 0 0	0 10 0	0 0 0
6123 South Condurrow, t, c, Camborne*	6 5 6	11 1/2	11 1/2	5 12 0	0 0 0	0 0 0
9000 South Darren, I, Cardigan*	1 10 0	3 1/2	3 1/2	0 2 0	0 0 0	0 0 0
4500 South Wheel Franches, I, Illogan*	7 12 4	16 1/2	17 1/2	40 5 6	0 16 0	0 0 0
12000 Tankerville, I, Salop*	6 0 0	5	4 1/2	4 17 6	0 0 0	0 0 0
2000 Tincroft, c, t, Pool, Illogan*	11 10 0	17 1/2	18 1/2	50 8 6	0 0 0	0 0 0
15000 Van, I, Llanidloes*	4 5 0	18 1/2	17 1/2	24 10 0	0 0 0	0 0 0
3000 West Chiverton, I, Perranzabuloe*	19 15 0	1 1/2	1 1/2	55 10 0	0 0 0	0 0 0
512 West Tolgus, c, Redruth	95 10 0	55	50 52 1/2	33 0 0	0 0 0	0 0 0
1200 West Wheel Seton, c, Camborne*	51 0 0	25	23 25	446 0 0	0 0 0	0 0 0
12000 Wheel Crebor, c, Tavistock	2 4 0	4 1/2	4 1/2	0 3 0	0 0 0	0 0 0
1024 Wheel Eliza Consols, t, St. Austell.	18 0 0	—	—	30 10 0	0 0 0	0 0 0
4295 Wheel Kitty, t, St. Agnes	5 4 6	5	5 1/2	12 9 6	0 0 0	0 0 0
3000 Wheel Peavor, t, Redruth	7 11 0	27	27 23	4 1 0	1 12 6	Feb. 1880

FOREIGN DIVIDEND MINES.

Shares.	Divid.	Last wk.	Clos. pr.	Total div.	Per sh.	Last pd.
35500 Alamillos, I, Spain*	2 0 0	1 1/2	1 1/2	2 0 0	0 0 0	0 0 0
30000 Almaden and Tinto Consol., s, t	1 0 0	3 1/2	3 1/2	0 6 3	0 0 0	0 0 0
20000 Australian, c, South Australia*	7 7 6	2	1 1/2	1 3 6	0 0 0	0 0 0
20000 Cape Copper Mining, s, t, South Africa	7 0 0	39 1/2	38 40	37 7 6	0 17 6	Mar. 1880
35000 Cesena Sulph. Co., Romagnia, Italy*	10 0 0	—	—	1 1 0	0 0 0	0 0 0
10000 Copiapo, c, Chili* (£20 shares)	17 0 0	12	12 1/2	7 11 5	0 0 0	0 0 0
23500 Eberhardt and Aurora, s, Nevada*	10 0 0	4 1/2	3 1/2	1 8 0	0 0 0	0 0 0
70000 English & Australian, t, c, S. Aust.	2 10 0	1 1/2	1 1/2	2 18 9	0 0 0	0 0 0
25000 Fortuna, I, Spain*	2 0 0	5 1/2	5 1/2	7 11 5	0 0 0	0 0 0
55000 Frontino & Bolivia, g, New Gran.*	2 0 0	3 1/2	3 1/2	0 3 6	0 0 0	0 0 0
15000 Linares, I, Spain*	3 0 0	6 1/2	5 1/2	18 2 0	0 0 0	0 0 0
10000 Pontbagnat, s, t, France*	20 0 0	23	21 23	27 17 6	0 10 0	0 0 0
100000 Port Phillip, g, Clunes* (£2 shares)	1 0 0	5 1/2	5 1/2	1 12 0	0 0 0	0 0 0
54000 Richmond Consol., c, Nevada*	5 0 0	13 1/2	13 1/2	8 4 6	0 0 0	0 0 0
40000 Santa Barbara, s, t, Brazil	0 10 0	2 1/2	2 1/2	0 8 9	0 0 0	0 0 0
120000 Scottish-Australian Mining Co.*	1 0 0	2 1/2	1 1/2	15 p. cent.	—	Nov. 1879
80000 Ditto, New	0 10 0	1 1/2	1 1/2	15 p. cent.	—	Nov. 1879
32000 Sentein, s, t, bl, Arizone, France	1 0 0	—	—	0 2 0	0 0 0	0 0 0
22500 Sierra Buttes, g, California*	2 0 0	2 1/2	1 1/2	2 0 6	0 0 0	0 0 0
40625 Ditto, Plumas Eureka	2 0 0	3 1/2	2 1/2	2 7 0	0 0 0	0 0 0
253000 St. John del Rey* (£45 Stock and multiples dead in hand)	245 255	—	—	12 1/2 p. cent. for half-year, June 1879	—	—
20000 Tolima, s, t, Colombia	5 0 0	—	—	1 3 0	0 0 0	0 0 0
25000 Victoria* (London), g, Australia	1 0 0	—	—	0 13 1/2	0 0 0	0 0 0
2100 W. Prussian (5500 pref. sh. £10 pd.)	10 0 0	10 1/2	10 1/2	2 10 0	0 0 0	0 0 0

* Have made calls since last dividend was paid.

NON-DIVIDEND FOREIGN MINES; FOREIGN AND MISCELLANEOUS STOCKS; TRAMWAYS; INSURANCE COMPANIES; GAS, IRON AND COAL, WAGON COMPANIES, &c.

NON-DIVIDEND FOREIGN MINES.

Shares.	Divid.	Last wk.	Clos. pr.
15000 Birdseye Creek, g, California*	4 0 0	—	—
30000 Blue Tent, hyd, California	5 0 0	2 1/2	2 1/2
10000 Buena Vista, I, Spain (£2 sh.)	0 15 0	—	—
15000 Canada, s, t, California*	1 0 0	—	—
82500 Canadian, s, t, Canada	4 0 0	2 1/2	2 1/2
34433 Cedar Creek, g, California*	5 0 0	—	—
15000 Chicago, s, Utah*	10 0 0	—	—
49935 Chontales, g, s, Nicaragua*	2 0 0	1 1/2	1 1/2
75000 Colombian Hydraulic, g, Colombia	1 0 0	—	—
65000 Colorado United, s, t, Colorado*	5 0 0	2 1/2	2 1/2
90000 Consolidated Mining	1 0 0	1 1/2	1 1/2
100000 Don Pedro North del Rey*	1 0 0	—	—
20000 English Austral, g, Victoria*	1 0 0	—	—
100000 Frontino, s, t, Ontario, Canada	1 0 0	1 1/2	1 1/2
100000 Hontachos, s, t, Spain	10 0 0	—	—
12000 Hultafall, s, t, bl, Orebro, Sweden	5 0 0	2 1/2	2 1/2
7500 Isabelle, g, s, California (£20 sh.)	5 0 0	—	—
50000 Kapanga, s, t, New Zealand	1 0 0	—	—
100000 Ind. Glenrock, s, t, Wynaad (fy. pd.)	1 0 0	1 1/2	1 1/2
100000 I. L. X., g, s, California*	1 0 0	1 1/2	1 1/2
50000 Javali, g, Nicaragua*	5 0 0	—	—
20000 Last Chance, s, t, Utah	5 0 0	—	—
65000 London and California, g, t	2 0 0	1 1/2	1 1/2
7587 Lusitanian, Portugal* (fy. pd.)	5 0 0	—	—
9000 Missouri, I, pref. (fully paid)	10 0 0	10 11	10 11
40000 Nava de Jadraque, s, t, Spain	1 0 0	1 1/2	1 1/2
66000 New Quebrada, c, Venezuela	5 0 0	3 1/2	3 1/2
200000 Nouv. Moneda, g, Venez. (em. com.)	1 0 0	1 1/2	1 1/2
3000 Oregon, g, Oregon, U.S. (pref. sh.)	4 0 0	—	—
50000 Palancillo, c, Chili* (£40000 Deb.)	4 0 0	4 1/2	4 1/2
80000 Pasternaca United, g, Italy*	1 0 0	—	—
25000 Pitsand, s, t, Brazil (in 6000 £1 pd.)	0 10 0	—	—
10000 Placerville, g, California	2 0 0	2 1/2	2 1/2
40000 Ravenscliff, s, t, N. Zind, c, S. Aust.	0 10 0	—	—
898320 Rio Tinto, c, Huelva, Spain	Stock	91 93	91 93
44950 Ditto	7 p. c. Mort. Bonds.	20 6	20 20 1/2
225000 Ditto	shares	10 6	11 1/2
100000 Rossa Grande, s, t, Brazil* (£1 sh.)	1 0 0	1 1/2	1 1/2
25300 Ruby and Dunderberg, g, Nevada*	10 0 0	7 1/2	7 1/2
200 Ditto (10 per cent. deb. conv.)	50 0 0	—	—
10000 Silver Plum, c, Colorado	1 0 0	—	—
00000 So. Indian, s, t, Madras (fully paid)	1 0 0	1 1/2	1 1/2
50000 South-East Wynaad, g, India	2 0 0	—	—
43174 United Mexican, t, s, Mexico	29 2 6	2 1/2	2 1/2
50000 Virneberg, c, Rheinbreitb., Ger.*	2 0 0	—	—
15000 Western Andes, s, Colombia	5 0 0	—	—
75000 Yorke Peninsula, c, So. Australia	1 0 0	1 1/2	1 1/2
54800 Yorke Pen., c, South Aust. Pref.	1 0 0	1 1/2	1 1/2

GAS COMPANIES.

Issue, Shares.	Divid.	Last wk.	Clos. pr.
50000 20. Bahia [L]	all	—	14 15
40000 5. Bombay [L]	all	—	5 1/2
10000 5. Ditto, New [L]	all	—	1 1/2
27000 20. Brentford Consolidated	all	—	14 14 1/2
14000 20. British	all	—	32 34
55000 20. Commercial	all	—	198 193
20000 20. Continental Union [L]	all	—	19 1/2
20000 20. Do. do. New, 1879, 1872	all	—	14 1/2
10000 20. Do. do. 7 per cent. Preference	all	—	23 1/2
23400 10. European [L]	all	—	18 19
094850 8. Gaslight and Coke, A. Ord.	all	—	176 178
50000 10. Ditto, 4th issue	all	—	—
50000 10. Ditto, 5th issue	all	—	16 17
284200 8. Do. 4 per cent. Deb. Stock	all	—	98 101
5000 10. Hong Kong and China	all	—	15 16
280000 8. Imperial Continental	all	—	181 183
386500 8. London	all	—	177 180
12000 5. Malta & Mediterranean [L]	all	—	2 1/2
100000 5. Metrop. of Melbourne p.c. Deb.	all	—	104 106
25000 20. Monte Video [L]	all	—	13 14
10000 5. Ottoman [L]	all	—	2 1/2
30000 5. Oriental [L]	all	—	7 1/2
27000 20. Phoenix	all	—	36 37
300000 8. Do. New Max. div. 7 1/2 p.c.	all	—	80
37500 20. Rio de Janeiro [L]	all	—	26 26 1/2
50000 8. South Metropolitan	all	—	198 202
250000 8. Ditto, ditto, B.	all	—	—

INSURANCE COMPANIES.

Issue, Shares.	Divid.	Last wk.	Clos. pr.
50000 100 Alliance British and Foreign	all	—	32 33 1/2
10000 100 Ditto, Marine	all	—	28 1/2
50000 30 British and Foreign Marine [L]	all	—	15 1/2
50000 50 Commercial Union	all	—	19 20
50000 20 Eagle	all	—	5 1/2
50000 20 Globe Marine [L]	all	—	1 1/2
7500 100 Imperial Life	all	—	21 23
13453 100 Indemnity Marine	all	—	101 103
100000 10 Lion Fire [L]	all	—	2 1/2
49626 20 L. Pool & Lond. Globe (£1 anny)	all	—	2 1/2
35862 25 London	all	—	60 62
40000 25 London and Lancashire Fire	all	—	3 1/2
50000 20 London and Provincial Marine	all	—	4 1/2
10000 100 Marine	all	—	48 46
50000 10 Merchants' Marine	all	—	1 1/2
10000 10 Maritime	all	—	48 45
40000 50 North British Mercantile	all	—	3 1/2
30000 100 Northern	all	—	33 35
40000 25 Ocean Marine	all	—	2 1/2
— Phoenix Fire	all	—	306 310
200000 10 Queen	all	—	2 1/2
100000 10 Railway Passengers	all	—	29 28
50000 5 Rock Life	all	—	8 8 1/2
50000 10 Sea	all	—	2 1/2
125000 10 Scottish Commercial	all	—	1 1/2
4000 20 Standard Marine	all	—	37 36
10000 20 Thames and Mersey Marine [L]	all	—	7 1/2
40640 20 Union Marine, Liverpool [L]	all	—	3 1/2
50000 20 Universal Marine [L]	all	—	7 1/2

BANKS.

80000	10	Agra [L]	all	10½ 11
20000	20	Anglo-Egyptian Banking [L]	all	21½ 22½
30000	40	Bank of Australasia	all	76 78
12500	20	Bank of British Columbia	all	17½ 18½
20000	50	Bank of British North America	all	54 56
10000	25	Bank of Egypt	all	28 30
50000	20	Bank of New South Wales	all	56 58
10000	10	Bank of New Zealand	all	22 23
25000	25	Bank of South Australia	all	22 23
20000	50	Bank of Victoria	25	35 37
40000	20	Chartrd. of Ind., Aust., & China	all	23 24
30000	25	Ch. Merc. of Ind., Lond., China	all	21½ 22½
20000	100	Colonial	30	53 55
50000	20	English Bk. of Rio de Janeiro [L]	10	1½ 1¾
60000	25	London and River Plate [L]	10	1½ 1¾
50000	10	London and San Francisco [L]	all	7½ 8½
50000	20	London Chartered of Australia	all	24 25
100000	11	National Bank of N. Zealand [L]	1½	3½ 4
60000	25	Oriental Bank Corporation	all	21 23
12500	10	Queensland National [L]	5	7 7½
34000	100	Stndrd. of British So. Africa [L]	25	21 22
50000	25	Union of Australia	all	60 61